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Editorial

This issue of the *Alberta Journal of Educational Research* is devoted to the Charlottetown symposium on the Educational Quality Indicators (EQI) initiative. Sponsored jointly by the Canadian Educational Researchers' Association and the Canadian Association for the Study of Education, the symposium was part of the 1992 meeting of the Canadian Society for the Study of Education in Charlottetown, Prince Edward Island. It brought together seven of the 10 teams involved in the EQI initiative. I chaired the symposium and invited Tom Maguire from the University of Alberta and Les McLean from the Ontario Institute for Studies in Education to serve as discussants.

The EQI initiative was a three-year collaboration between Alberta Education and 12 school jurisdictions to develop indicator systems to measure the success of the educational enterprise. Its goal was to assist the provincial government and school jurisdictions in providing better information to improve planning, policy, and decision making. Toward this end, 10 collaborative action research projects were initiated in 1989 and concluded in 1992. These projects developed indicator systems that include a broad range of outcomes; methods to collect, analyze, and interpret data; and ways to report and communicate the information to different audiences.

Each project focused on specific aspects of educational improvement and accountability. The projects can be grouped into three major areas: system accountability, teaching and learning, and alternative student assessment strategies. The Grande Prairie project developed school and district profiles (accountability). Two projects examined teaching and learning: Spirit River identified behaviors of effective teaching and Fort McMurray Catholic implemented the principles of outcome-based education. Four of the projects explored alternative ways to measure student success: Calgary Public and Catholic developed indicators of quality student performance in art and mathematics; Brooks explored ways to measure responsible student behavior; and Fort McMurray Public developed a three-level approach to measuring desirable student social outcomes. Lethbridge Catholic developed a taxonomy of student affective behaviors. These seven projects are described in this issue of *AJER*. An introductory article discusses the EQI initiative, and the comments of the two discussants complete the issue.

Nelly McEwen
Guest Editor

Nelly McEwen
Alberta Education

Educational Quality Indicators

Educational indicators can describe education in a way that permits meaningful interpretation to take place, leading to educational improvement and accountability. Organizations around the world are developing and implementing indicator systems to provide better information about education. The Educational Quality Indicators (EQI) initiative was a collaboration between Alberta Education and 12 school jurisdictions to develop and implement indicator systems to measure the success of the educational enterprise. Its goal was to assist the provincial government and school jurisdictions in providing better information to improve planning, policy, and decision making. Toward this end, 10 concurrent collaborative action research projects were initiated in 1989 and concluded in 1992. These projects developed indicator systems that include a broad range of outcomes; methods to collect, analyze, and interpret data; and ways to report and communicate the information to different audiences.

Les indicateurs éducatifs peuvent décrire l'éducation d'une façon qui permettrait une interprétation compréhensible qui mènerait à une amélioration et une raison d'être de l'éducation. Des organisations à travers le monde sont en train de développer et d'implanter des systèmes d'indicateurs qui pourraient mieux les renseigner au sujet de leur système d'éducation. L'initiative de Educational Quality Indicators (EQI) était le résultat d'une collaboration entre Alberta Education et 12 districts scolaires pour développer et implanter des systèmes indicateurs afin de mesurer le succès de l'entreprise éducative. Son but était d'assister le gouvernement provincial et les districts scolaires à mieux se renseigner afin d'améliorer la planification, la politique et la prise de décisions. A cette fin, une dizaine de projets de recherches collaboratifs concurrents ont été initiés en 1989 et terminés en 1992. Ces projets ont développé des systèmes indicateurs comprenant une vaste série de résultats; de façons de collectionner, d'analyser, d'interpréter des données; des façons de présenter et de communiquer l'information obtenue à différents auditoires.

Reform and Accountability

An indicator system is a tool to focus reform and improvement. The goals, or intended benefits of implementing indicator systems, are to assess the effectiveness and efficiency of the educational enterprise, to improve education, and to provide a mechanism for accountability. The major purpose of indicator systems is to provide *enhanced* information about education for *improved* planning, policy, practice, and decision making. Accurate and timely information is a critical component for action.

Rationale

A new wave of educational reform began in the 1980s. Perceived shortcomings in education, and international competition in all sectors, served as a catalyst for the current accountability and reform movements in Canada and the United States, and indeed around the world. These reforms resulted in many

Nelly McEwen is coordinator of educational standards and indicators in the Planning and Policy Branch of Alberta Education. She coordinated the Educational Quality Indicators Initiative. She is interested in student assessment and policy relevant evaluation.

organizations developing or implementing what have become known as educational indicator systems. Indicators can describe education in a way that permits meaningful interpretation to take place, leading to educational improvement and accountability. They can paint a picture of the conditions of education and stimulate thinking about potentially effective policies (Shavelson, McDonnell, Oakes, Carey, & Picus, 1987). Indicators can be considered policy relevant statistics designed to provide information about the status, quality, or performance of the educational system (Burstein, Oakes, & Guiton, 1992, p. 410).

The current educational reform movement led to expectations for greater accountability and increased monitoring and evaluation of schools and systems. Educational indicators provide information about a system's current functioning, suggest whether progress is being made, and warn of any potential problems (Oakes, 1986). Although indicators cannot describe a system completely, they do provide a picture of existing conditions that can inform planning, policy and decision making.

The use of multiple indicators repeated over time can describe the complexity of education and provide a good picture of performance. Information available through documentation, student assessment, surveys, and observation can describe the effectiveness and efficiency of the operation. As there are multiple users of information, it is also necessary to determine what type of information the different audiences require and to tailor information reports to their specific needs (Bock & Mislevy, 1988).

There are many issues in implementing indicator systems. Issues can be categorized as educational and social, administrative and technical, and political and financial. Resolution of issues often involves compromise among competing perceptions and values. Negative impacts can be minimized if an indicator system is perceived as an integrated whole in which the various parts function as a system and implementation strategies incorporate multiple goals, indicators, methods, levels of analysis, and participants. See McEwen and Chow (1991) for a discussion of implementation issues.

An International Phenomenon

The search for meaningful information to help improve education is an international phenomenon. Several organizations are developing and implementing indicator systems. The Organization for Economic Cooperation and Development (OECD) launched a project to develop an international set of indicators that present key features of the education systems of member countries. *Education at a Glance* (OECD, 1992) is the product of the collective effort to improve the gathering and reporting of comparative information on education in the OECD countries. The report provides information on three types of indicators: demographic, economic, and social context; costs, resources, and school processes; and outcomes of education. The main reference year is 1988. OECD reported student achievement collected through two international associations, the International Association for the Evaluation of Educational Achievement (IEA) and the International Assessment of Educational Progress (IAEP). OECD presented mathematics achievement for 13-year-olds from IEA's Second International Mathematics Study between 1980 and 1982 and the IAEP II in 1991.

In the United States several organizations and levels of government have developed mechanisms for accountability and reform including the National Center for Education Statistics, the Educational Leaders Consortium, and the Council of Chief State School Officers as well as state agencies, research organizations, foundations, and universities. For example, the Council of Chief State School Officers (CCSSO) developed a model that organized educational indicators into a report that allowed interpretation of educational outcomes in relation to the context in which schooling takes place in the various states and in relation to policies and practices that can be changed for the better (Selden, 1988). The first report was released in 1987 and emphasized demographic and fiscal factors that establish the context for education. In the summer of 1987, CCSSO joined forces with several other constituencies: teachers, administrators, school board members, specialists on testing, and representatives of private schools to arrive at a consensus on the subject matter to be tested in the 1990 National Assessment of Educational Progress (NAEP), the first assessment to yield state-by-state comparisons. In 1991 the National Center for Education Statistics published *Education Counts* which describes a plan to develop indicators organized around three criteria each containing two issues: what matters most (learner outcomes and quality of educational institutions), social context (readiness for school and societal support for learning), and national values and aspirations (education and economic productivity, and equity.)

In 1989 Canadian ministers of education agreed to undertake the School Achievement Indicators Program (SAIP) intended to collect information about a number of areas including participation, graduation, and achievement through the Council of Ministers of Education, Canada (CMEC). The first CMEC assessment of 13- and 16-year-old students' achievement in mathematics will take place in the spring of 1993.

In 1990 the Canadian Education Statistics Council released the first edition of *A statistical portrait of elementary and secondary education in Canada*. This publication was developed jointly by the provinces through CMEC and Statistics Canada. It represents a consensus among the provinces on the most significant statistics on Canada's education systems that can be developed from currently available data. It explores the general demographics of school-aged children, various enrollment and teaching patterns, and the financing of elementary and secondary education in Canada. The second edition was released in 1992.

The EQI Initiative

In this context of educational reform around the world, Alberta introduced a number of initiatives to improve education in the province. In 1982 it introduced the Achievement Testing Program at grades 3, 6, and 9, and in 1984 reinstated the Diploma Examinations Program at grade 12 as part of the requirements for high school graduation. In 1984 other reform initiatives included the School Act Review, the Management and Finance Plan, the Review of Secondary School Programs, and the introduction of five evaluation policies (student, teacher, program, school, and system). Two primary beliefs influenced the reform initiatives in Alberta. First, the student is the central reason for schooling, and second, education is a purposeful endeavor that can

be assessed. To assist in ensuring that these beliefs became operational, Alberta Education promoted a results-based approach to education to provide a better balance among inputs, processes, and results.

The Educational Quality Indicators (EQI) initiative was one of the projects designed to promote results-based education in Alberta. An important feature was that it introduced a collaborative model to the provincial reform initiatives. EQI participants became members of a provincial committee that discussed and recommended directions to Alberta Education in achieving results-based education.

EQI was designed to produce a set of indicators, appropriate standards, and accompanying methods to measure the performance of the educational system in the province. The proposed system of measuring success takes into consideration and reflects government policy and the goals of schooling. It addresses two essential questions:

1. Are students learning to their potential?
2. Is the educational system supporting student learning effectively and efficiently?

The expected results over the three years of the EQI initiative were indicator systems to include a broad range of student outcomes, points of reference for comparing results, and an interpretative framework to describe variation among students and schools; methods to collect, analyze, and interpret the data provided by the indicators; and ways to report and communicate the information to different audiences. A fundamental principle was that no single indicator, or even group of indicators, could fully describe the complexity of education. Any system would include many indicators, measured by both quantitative and qualitative methods, for selected dimensions.

Conceptual Framework

The conceptual framework for the EQI initiative guided the direction of the 10 concurrent action research projects and the discussion of results-based education in Alberta Education. A four-dimensional model of education was developed that consists of partners (schooling, family, and society), conditions (context, inputs, and processes), student outcomes (cognitive, affective, and behavioral) and time (grades 3, 6, 9, and 12) (McEwen & Zatko, 1989). The model draws on the work of Carroll (1963), Hymel (1988), Walberg (1984), Oakes (1986) and Shavelson et al. (1987). The EQI model extends the work of the above by consolidating the joint responsibility of the partners who contribute specific conditions to developing student learning over time.

The model provides a way of describing the interrelationships among the dimensions. This description of the educational system and student achievement is not meant to predict future behavior, but rather to help in providing some understanding of the educational phenomena that can subsequently be acted on to improve the situation. It is intended to permit multiple levels of analysis (province, community, school, classroom, and individual students) so that a range of interpretations can be drawn and improvement targets proposed (Cziko, 1989).

Education is a complex social enterprise. Focusing on schooling alone without regard for the other influences that shape its direction will probably not result in significant change. This model incorporates the responsibilities of

the other major partners and recognizes conditions that contribute to student outcomes. For educational constituencies to determine whether students are making appropriate progress, it is necessary to examine results over time to determine what changes should and have been effected.

The EQI initiative set three criteria for a successful indicator system: an interpretative framework to describe variation among students and schools; student outcomes related to the educational enterprise; and points of reference for comparing results (Alberta Education, 1988).

- The *interpretative framework* consists of the partners (schooling, family, and society) and conditions (context, inputs, and processes). Together the partners and their respective conditions provide a framework for helping to understand the student outcomes that schools, the family, and society strive to produce through adjusting the inputs and processes; the context is not as readily changeable. School jurisdictions and governments collect a lot of information on context and inputs; some also collect information on instructional processes. School jurisdictions are interested in results for students in other jurisdictions of comparable size, location, and economic base.
- *Student outcomes* include a broad range of the behaviors desired by schools in the cognitive, affective, physical, and social domains; the outcomes selected for measurement should relate to the goals and priorities of the local school jurisdiction and the province.
- *Points of reference* include time, groups, and targets. Assessment of selected indicators can occur either on an annual or a periodic basis; for example, Alberta achievement tests and diploma examinations are administered annually to students in grades 3, 6, 9, and 12, whereas assessments such as those conducted by the IEA and IAEP occur periodically in selected subject areas. Groups for comparing results can include local, provincial, national, and international counterparts. Targets include benchmarks and standards. Benchmarks describe the existing level of conditions and outcomes, whereas standards define an optimal or desired level; targets specify a feasible level of improvement within a predetermined period of time. A target sets an improvement increment over what exists (the benchmark) in an attempt to reach what is desired (the standard).

Implementation

The Terms of Reference (Alberta Education, 1988) provided direction to the EQI projects. School jurisdictions that were already concerned with measuring educational quality were identified and invited to submit a proposal. The 12 school jurisdictions whose proposals were accepted represent almost half (48%) of the students in public and separate schools in the province. Alberta Education provided funds to assist these jurisdictions to improve their assessment procedures and to share the results with others in the province. It also supported the projects with consultation, information, and coordination.

The 1988-1989 school year was devoted to developing the conceptual framework and implementation plan, developing the Terms of Reference for the projects, initiating the collaborative action research projects, and organizing the committees. The projects began in 1989 and formally concluded in 1992.

Coordination of the EQI initiative resided in the Policy and Planning Branch of Alberta Education. A provincial coordinator, who was responsible for the initiative, chaired two departmental committees that provided assistance to EQI. The working group consisted of the liaison staff from each of the five Regional Offices of Education (located in Grande Prairie, Edmonton, Red Deer, Calgary, and Lethbridge). This committee was responsible for monitoring the projects. It met on a regular basis to discuss progress, identify issues and strategies, and to plan the provincial meetings. The second committee was the interdivisional advisory group with representatives from branches within the Student Programs and Evaluation, and Finance and Administration Divisions of Alberta Education; it met on a periodic basis and provided input and feedback. Both committees participated in the semiannual provincial meetings.

Local Development. Each project was autonomous and the responsibility of a local coordinator and project team. This coordinator reported to the superintendent for the school jurisdiction and was responsible for the developmental work and the management of the tasks identified in the contract between the school jurisdiction and the department. The contract required annual progress reports as well as a final report on completion of the project in 1992. Each project was guided by a local steering committee consisting of the local coordinator and other staff from the participating school jurisdiction, liaison staff from the Regional Office of Education, and the provincial coordinator. The steering committee's responsibilities included consultation and evaluation of the terms of the contract.

Each participating school jurisdiction was responsible for its own project because each represents a community that has values it wishes to impart to its students through its goals, priorities, and expectations. It was important that each project reflect these aspirations by involving its public students, teachers, administrators, trustees, parents, and others in discussions on which indicators to include and why. Without input from the larger community, the indicators might not provide a representative picture of the expected outcomes of the educational system.

Each participating school jurisdiction developed and implemented a local indicator system with three components: (a) a set of indicators including an interpretative framework, student outcomes, and points of reference; (b) methods to collect, analyze, and interpret the data; and (c) a reporting and dissemination strategy to inform diverse audiences of the results. The selected indicators represent each jurisdiction's goals and priorities and reflect the community's expectations. Every project had three phases, each of approximately one year's duration. The first year, 1989-1990, was a developmental one and the subsequent two years resulted in field-testing the prototype sets of indicators and procedures, and then refining them.

School jurisdictions, if they are to make sense of the outcomes of their educational enterprise, need to interpret the results in terms of their local circumstances. In the process of developing a preliminary set of indicators, trying it out in their own jurisdiction, and refining it on the basis of the results, jurisdictions took the opportunity to develop and use indicators that are flexible, responsive to local needs, have community support, and can provide

them with the type of information they need for setting policies, practices, and procedures.

Provincial Support. Alberta Education supported the EQI initiative by providing resources (funds and consultation), information, and coordination. It committed \$1 million to support the three-year concurrent research projects.

A quarterly newsletter, the *Collaborator*, was introduced as a communications mechanism for the project teams and Alberta Education. The first issue was released in September 1989 and provided an overview of EQI and each of the 10 projects. Eleven subsequent issues were published. Each June issue contained an annual status report. This 92-page record documented events and activities over the three years.

Alberta Education developed three technical documents to support the EQI initiative. The first, an *Annotated Bibliography* (1990a), was initially distributed in July 1989. It was subsequently revised, expanded, and reorganized and a second edition released in January 1990, followed by a supplement in December 1990. This second edition contains approximately 350 annotations organized into 14 themes under three major headings: indicator systems, interpretative framework, and outcomes. The second, *Methodological Considerations* (Alberta Education, 1990b), consists of a rationale for a balanced approach to quantitative and qualitative analysis, followed by considerations in using these two methods. The third document, *Inventory of Assessment Instruments* (Alberta Education, 1990c), contains a description of technical criteria for analyzing instruments, and critiques of more than 90 instruments. The inventory identified potential assessment instruments and screened them according to their psychometric properties and suitability for EQI. It provided participants with a convenient pool of possible measures for the types of indicators that interested them.

The provincial committee—Alberta Education staff, project coordinators, and superintendents—met semiannually to share information, discuss and interpret findings, and identify issues and strategies. These meetings served to maintain personal contact among participants, to promote synergy, and encouraged people to meet deadlines. An important component was professional development. The November 1990 meeting featured concurrent workshops on the assessment instruments and qualitative methods. These sessions provided participants with the opportunity to work through the material, ask questions, and discuss issues. The interactive computer version of the bibliography was also demonstrated. The January 1992 meeting featured clarifying final report expectations and criteria for ensuring quality reports. There were also two concurrent workshops, one on data analysis and presentation using a statistical and graphic utility, and the other on communicating with the public.

In 1991 two measurement experts were engaged to provide technical advice to the project teams. University of Alberta professors Tom Maguire and Todd Rogers reviewed the materials prepared by the teams and, together with the provincial coordinator, visited each team to discuss the projects. Each team received written comments on its project and suggestions for improvement.

Charlottetown Symposium

Seven of the project teams participated in a symposium on the EQI initiative at the 1992 meeting of the Canadian Society for the Study of Education. The double session was sponsored jointly by the Canadian Educational Researchers' Association and the Canadian Association for the Study of Educational Administration. In 1990 five project teams participated in the first EQI symposium at CSSE in Victoria. Both symposia helped participants clarify their projects and informed the Canadian academic community of the initiative. Both were well attended and the feedback from the delegates was positive. This special issue of the *Alberta Journal of Educational Research* features the seven projects that participated in the Charlottetown symposium. A synopsis of the projects follows.

Grande Prairie Public developed school and district profiles to inform stakeholders of the quality of education in its district. The profiles provide information in four areas student achievement, school climate, quality of instruction, and funding and will be published annually.

Spirit River identified 26 behaviors of effective teaching and grouped them into four areas: planning and preparation, instructional strategies, communication skills, and pupil/teacher relationships. In 1991 teachers were observed on these behaviors and a composite performance baseline prepared. Student perceptions, attitudes, achievement, and discipline data were also collected. Data collection was repeated in 1992 to provide a basis for comparison.

Fort McMurray Catholic implemented the principles of outcome-based education in mathematics from grades 2 to 10 and measured student success in achievement, responsibility, and attitudes.

Calgary Public and Catholic developed indicators of quality student performance in art and mathematics. EQI-Art focused on the *product* of learning, that is, the artwork prepared by the student, whereas EQI-Math focused on the *process* of student thinking in solving mathematical problems.

Brooks explored ways to measure responsible student behavior. This project collected data from a variety of sources and involved the community in reaffirming its commitment to positive student behavior.

Fort McMurray Public focused on desirable student social outcomes. The three-level approach to measuring social skills includes a diagnostic screen and a manual of activities to help students develop effective personal, interpersonal, social reasoning and classroom behaviors.

Lethbridge Catholic developed a taxonomy of student affective behaviors in five areas self-worth, interpersonal relationships, world awareness, learning, and spiritual life.

Tom Maguire and Les McLean were invited to serve as discussants at the symposium. Their comments follow the articles on the projects.

A Success Story

Why is the Educational Quality Indicators initiative a success story? There are many reasons. It accomplished what it set out to do over the three years. It developed enhanced indicator systems based on theory and practical experience and developed better ways to track educational improvement in Alberta. The collaboration between Alberta Education and the 12 school jurisdictions to develop indicator systems, the active participation of thousands of Alber-

tans, and the involvement by the Conference of Alberta School Superintendents (CASS) in organizing the EQI conference are further achievements. Project teams developed a common understanding of the implications of better information that can now be shared with others to help them in planning, setting policies and practices, and making decisions. Requests for information about EQI have come from governments, school jurisdictions, universities, and other organizations across Canada, the United States, Europe, Asia, and Australia.

A Direction for Improvement

The indicator systems developed by the participating school jurisdictions are based on theory and practice. An extensive review of the literature during the developmental phase ensured that teams were aware of conceptual frameworks and incorporated these into developing their indicator systems. The field tests tempered theory with practical realities to ensure that indicators that survived this phase were practical and had direct application for school districts. This direction for improvement incorporated a focus on student outcomes based on the goals of schooling, a balance among cognitive, affective, and behavioral outcomes, multiple ways to collect and report information, and the active involvement of educational partners (students, staff, parents, stakeholders, and the public).

The local indicator systems have support in their communities because of the active involvement of partners in their development. Several models for assessing the effectiveness and efficiency of instructional programs, delivery systems, and overall system performance were developed. In addition, several innovative alternative student assessment strategies were developed. They are valuable additions to the existing set of measurement instruments because they are based on theory and refined through practice. Other districts can use these products to assess a broader range of outcomes. These products can now be adapted by other districts and used to suit their local purposes.

Collaboration

EQI is the single largest cooperative project in Alberta dealing with educational indicators. A 1991 survey of project teams indicated that 17,000 Albertans were directly involved in the initiative over the first two years in the development and field testing of the indicator systems. Two thirds of the participants were students and a quarter were members of the community: parents, stakeholders, the public. The community was involved in providing perceptions of what is important in education. Participation (1,300 teachers and more than 4,000 members of the community) is an important ingredient in the successful implementation of an indicator system.

The EQI initiative has become a model for collaboration between government and school jurisdictions. Despite changes in project coordinators, superintendents, and three years of change in Alberta, the initiative met its target and was completed on time. The January 1993 EQI Conference marked the formal conclusion of the initiative, but the beginning of a new era of cooperation among educational partners interested in improving education. Organized by the Conference of Alberta School Superintendents (CASS), the conference provided an opportunity for the 10 project teams to present the

materials they had developed and the results achieved over the past three years. More than 300 delegates, primarily from Alberta but also from British Columbia to Newfoundland, attended the conference. This was a major accomplishment because it was the first time that Alberta Education held a conference on a research endeavor, and the first time that CASS organized such an event for an Alberta Education initiative. *Achieving Quality* (Alberta Education, 1993), the final report of the EQI initiative, was released at the conference.

Potential Provincial Indicators

A major purpose of the EQI initiative was to develop a set of indicators for a provincial indicator system. At the fifth provincial meeting in January 1992, EQI partners discussed potential provincial indicators, effective practices, follow-up plans, and issues. Participants recommended that provincial indicators should:

- focus on student outcomes;
- be based on the goals of schooling and desirable personal characteristics;
- represent a balance among cognitive, affective and behavioral outcomes;
- provide corollary evidence (tests, surveys, interviews, records);
- provide multiple perspectives (student, staff, parents, stakeholders, the public).

The student indicators for which there was consensus include achievement, participation, creativity, graduation, attitudes, self-esteem, satisfaction, behavior, responsibility, and fitness. Each indicator is tied to one or more of the goals of schooling and the desirable personal characteristics. Multiple measures and sources are recommended for each student outcome. This broader range of student outcomes contributes substantially to the existing information on students and complements the currently available information on context, inputs/resources, and outcomes that Alberta Education published in *Education in Alberta: Facts and Figures* (1992).

The proposed indicators can serve both provincial and local needs. Alberta's achievement testing and diploma examination programs provide districts with annual results for their students. Adding indicators of participation and completion provides a more comprehensive picture of student success. Whereas achievement provides a measure of academic excellence, participation provides an indication of equity. Together a better picture of performance results. Moreover, exemplary products by students kept in a portfolio or on videotape provide evidence of the diversity of student performance. The proposed indicators can, therefore, be aggregated and reported not only at the provincial level, but also at the district and school levels. Those involving student diversity and nonacademic areas can be collected and reported locally. Jurisdictions then are free to tailor their information reports to their publics based on local priorities and expectations. Therefore, accountability can be served both provincially and locally, while respecting local autonomy.

Measuring indicators in multiple ways gives districts confidence in the information provided by a variety of sources. Provincial sources provide common indicators that ensure comparability among districts and provide an overall picture for the province. For example, when achievement is measured

by provincial achievement tests and diploma exams, Rutherford scholarships, and performance assessments, districts can see how well students at different levels (grades 3, 6, 9, 12) compare with provincial standards. Trends over time indicate whether improvement is occurring.

Many of the products can be used by other districts immediately. For example, the *Social Skills Diagnostic Screen* can measure student social skills and *A Celebration of Learning* describes student affective behavior. Schools are microcosms of society, and social and affective skills are important areas for student growth and development.

Conclusions

The ownership and commitment that resulted from leaders developing local indicator systems that reflect the values of their respective communities have positive spin-off effects on the larger educational context in Alberta. The benefits of this three-year collaboration include the discussion among participants on the emerging set of indicators, the examination of issues, and the communication of results to diverse client groups.

The information generated from the projects will assist Alberta Education to develop provincial indicators. The interpretation and recommended directions of the local indicator projects, together with other provincial initiatives, provide a solid foundation for the implementation of an information system that measures the success of the educational enterprise in the province.

Educational indicators can provide better information to help improve education. They can provide a more balanced picture of the operation and outcomes of schooling, particularly if they focus on a broader range of desired outcomes. By focusing on student learning, and interpreting and reflecting on the findings, better decisions about schooling will result.

References

- Alberta Education. (1988). *Educational quality indicators: Terms of reference*. Edmonton: Planning and Policy Secretariat.
- Alberta Education. (1990a). *Educational quality indicators: Annotated bibliography*. Edmonton: Corporate and Fiscal Planning.
- Alberta Education. (1990b). *Educational quality indicators: Methodological considerations*. Edmonton: Corporate and Fiscal Planning.
- Alberta Education. (1990c). *Educational quality indicators: Inventory of assessment instruments*. Edmonton: Corporate and Fiscal Planning.
- Alberta Education. (1992). *Education in Alberta: Facts and figures 1991*. Edmonton: Policy and Planning.
- Alberta Education. (1993). *Achieving quality*. The final report of the Educational Quality Indicators Initiative. Edmonton: Policy and Planning.
- Bock, R.D., & Mislevy, R.J. (1988). Comprehensive educational assessment for the states: The duplex design. *Educational Evaluation and Policy Analysis*, 10(2), 89-105.
- Burstein, L., Oakes, J., & Guiton, G. (1992). Education indicators. In M.C. Alkin (Ed.) *Encyclopedia of educational research* (6th ed., pp. 409-418). New York: Macmillan.
- Canadian Education Statistics Council. (1990). *A statistical portrait of elementary and secondary education in Canada*. Ottawa: Statistics Canada.
- Carroll, J.B. (1963). A model of school learning. *Teachers College Record*, 64, 723-733.
- Cziko, G.A. (1989). Unpredictability and indeterminism in human behavior: Arguments and implications for educational research. *Educational Researcher*, 18(3), 17-25.
- Hymel, G.M. (1988, April). *A macromodel of effective, outcome-based, mastery learning school variables: An extended view*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

- McEwen, N., & Chow, H. (1991). Issues in implementing indicator systems. *Alberta Journal of Educational Research*, 37, 65-86.
- McEwen, N., & Zatzko, G. (1989, June). *Educational quality indicators: Framework for action*. Paper presented at the annual meeting of the Canadian Educational Researchers' Association, Quebec City.
- Oakes, J. (1986). *Educational indicators: A guide for policymakers*. New Brunswick, NJ: Center for Policy Research in Education, Rutgers University.
- Organisation for Economic Co-operation and Development. (1992). *Education at a glance*. OECD indicators. Paris: Centre for Educational Research and Innovation.
- Selden, R.W. (1988). Missing data: A progress report from the States. *Phi Delta Kappan*, 69, 492-494.
- Shavelson, R.J., McDonnell, L., Oakes, J., Carey, N. and Picus, L. (1987). *Indicator systems for monitoring mathematics and science education*. Santa Monica, CA: RAND Corporation.
- Special Study Panel on Education Statistics. (1991). *Education counts*. An indicator system to monitor the nation's health. Washington, DC: National Centre for Education Statistics.
- Walberg, H.J. (1984). Improving the productivity of America's schools. *Educational Leadership*, 41(8), 19-27.

Roger Mestinsek

Grande Prairie School District No. 2357

District and School Profiles for Quality Education

Schools and school districts have functioned for too long on the premise that they have a clear understanding of the quality of their graduates. Traditional methods for measuring the effectiveness of education relied too heavily on standardized test scores. The production of annual school and district profiles will be an ongoing commitment in the Grande Prairie Public School District. The profiles provide interested stakeholders with current and valuable data not only to judge the health of their educational system, but also to identify specific areas in need of attention. Annual feedback allows schools to measure progress or the effect of their efforts to improve areas of education and enables schools and school districts to become more efficient and effective in delivering education to their clientele. A more effective and efficient educational system, as identified by stakeholders, will result in a positive educational experience for all partners in the education process.

Pendant trop longtemps, les écoles et les districts scolaires ont fonctionné croyant qu'ils avaient une compréhension claire et nette de la qualité de leurs gradués. Les méthodes traditionnelles pour mesurer l'efficacité de l'enseignement dépendaient beaucoup trop des scores et des tests standardisés. La production des profils sommatifs annuels des écoles et du district seront une priorité continue pour la commission scolaire Grande Prairie Public School District. Ceux intéressés à déterminer la santé organisationnelle de leur système éducatif seront intéressés à voir les profils comprenant des données courantes et valables. Ils pourront ainsi identifier les besoins immédiats de leur situation particulière. Le feedback annuel permet aux écoles de mesurer le progrès ou l'effet de leurs efforts pour l'amélioration de l'éducation et permettrait aux écoles et aux districts scolaires de devenir plus efficaces à livrer un produit éducatif à leur clientèle visée. Un système éducatif plus efficace tel qu'identifier par ceux intéressés résulterait en une expérience éducative positive pour tous les partenaires engagés dans les processus éducatif.

The Grande Prairie Public School District became involved with the three-year Educational Quality Indicators (EQI) initiative specifically to meet four educational goals. First, the district was interested in developing a set of indicators of educational quality that reflect the views of the local stakeholders of education. Second, the district wanted to report the comparative results of the local indicators in an annual document that would reflect the quality of education in our district. The third local goal was the development of a process to use the annual reports to plan educational improvement in the district. The final goal was to test the indicators and processes in another school district to test their transferability.

The primary challenge of the project team at the beginning of the project centered on the lack and accessibility of educational data in the district. Any attempts to report on the educational health of the district were simply publi-

cations of data that were accessible to the producers of the specific report. Errors in judgment were frequently made about what the intended audience wanted to know and what the data actually represented. A great deal of latitude was demonstrated in the interpretation of the data that resulted in confusion and eventual discarding of the data or the report. The project team also assumed that the educators and parents wanted feedback that was both meaningful to them and presented in a format that they could easily understand. The team was confident that the stakeholders could plan effective improvement in their schools if they were given solid data from which to begin. The final challenge for the team was to develop a system of collecting and reporting data that was not overly intrusive to the educational process and thus cumbersome and ineffective. The Grande Prairie School District has an urgent need for accurate data from which to plan its educational goals. The school district is continually required to make decisions on education with a decreasing economic base. It is essential that the basis on which these decisions are made is solid and long-lasting.

Related Literature

The team reviewed the literature by educational researchers such as Edmonds (1978), and Brookover and Lezotte (1977) on measuring school effectiveness. The related literature on effective schools, high performance schools, quality education, and accountability provide researchers with many questions on the reporting of school effectiveness (Frederick, 1987). The development of the strategy for the Grande Prairie study involved looking at various projects conducted in the United States (Codianni & Wilbur, 1983). This research provided a basis for understanding the work that had been done in the area of school effectiveness and quality indicators. The team established a method for measuring the quality indicators of the Grande Prairie Public School District as defined by the targeted stakeholders. Many established instruments and methods had already been employed by educational researchers in their attempts to define criteria for measuring educational quality. For example, the Austin Independent School District (1987) cited indicators such as student achievement, college-bound students, student diversity, basic skills, attendance, and dropout rates in comparing the effectiveness of their district with other districts. The review of the literature on quality indicators gave the project team an understanding of what to look for and provided a strategy to obtain the necessary data. Baker (1987) provided the project team with additional cautions in developing our educational indicators:

These measures must first serve the interests of students and improve their schools. We must overcome the habit of preparing measures for the convenience of test developers, administrators, legislators, or even teachers. Rather, we need to consider the impact of our approaches to assessing educational effectiveness on our current students. (p. 38)

The school profiles involved planning with the school administration and the school stakeholders. Mann (1990) strongly supports the thrust of stakeholder involvement in determining the data and actions required for educational improvement: The research team believed educators have relied too heavily on the results of standardized tests as the main source of feedback

on the quality and effectiveness of the educational process. Baker (1987) cautions that quantitative outcomes such as test scores are easy to gather and report, but indicators that reflect input variables and process are just as important (p. 37).

In working with stakeholders to improve education, all terminology was clearly defined. The project team adopted the Oakes' (1986) definition of an educational indicator:

A statistic about the educational system, that reveals something about its performance or health. An indicator has a reference point. The reference point may be a previous value, the value of a comparison group, or some socially determined standard. An indicator should provide at least one of the following:

- information about the education system's performance
- features of the system known to be linked to desired outcomes
- central features of the system
- potential or existing problem areas
- information that is policy relevant. (pp. 1-2)

Quality is a concept that has become prevalent in the late '80s and early '90s. It is of critical importance that educators understand fully the concept of quality when embarking on a plan to measure and improve quality in their systems. Crosby (1980) outlined five erroneous assumptions regarding quality: it means goodness or luxury, or shininess, or weight; quality is an intangible and therefore not measurable; there is an "economics" of quality; problems of quality are originated by the workers, particularly those in the manufacturing area; and quality originates in the quality department (pp. 14-16). To understand programs and quality itself, in the most practical terms, we must deal with these erroneous assumptions held by most management individuals.

The establishment of school and district profiles reporting annually on the stakeholder indicators of quality is also supported by Peters and Waterman (1982) who speak of the relationship of motivating subjects and the subjects' self-perception: "Researchers studying motivation find that the prime factor is simply the self-perception among motivated subjects that they are doing well" (p. 58). The quotation begs the question, how do we know if we are doing well? According to many authors on leadership, management, and quality, the answer is found by providing subjects with meaningful feedback on which to judge their performance.

Covey (1991) reinforced the direction of the Grande Prairie study in referring to stakeholder information systems and the eight-step classic problem solving process that starts by gathering data and ends with studying the results. Fullan and Hargreaves (1991) captured the essence of the indicators study with the following comments: "Effective collaborations operate in the world of ideas, examining existing practices critically, seeking better alternatives and working hard together at bringing about improvements and assessing their worth" (p. 55).

Design

The project was designed in three main phases, which involved the development of stakeholder generated indicators, researching collection and reporting methods, and finally, the use of the information to plan school improvement.

The project team gathered stakeholder opinions on the measures of quality education in the Grande Prairie Public School District. The target group consisted of students, educators, administrators, support staff, parents, and a random sampling of members of the general public. During phase one, stakeholders' opinions were gathered through direct interview sessions with project team members using a nominal group technique to classify and rank the identified indicators. All stakeholders with the exception of the general public and the high school parents were surveyed on their levels of satisfaction with the quality of education using questionnaires that allowed for responses to be recorded on a Scantron form. The two exceptions were polled via a telephone survey. Using the results from the contact with the stakeholders, the format for district and school profiles was developed by the project team members.

As with any project of this size, problems arose and methodology changed as the team gained more experience and expertise. The general public participation in the identification of the quality indicators was limited to the few service clubs that the team members accessed. A generalization that these clubs are a representative sample of the general public of the city of Grande Prairie would be weak. The plan to gather annual data on the identified indicators was labeled ambitious early in the program and time has proven it to be a valid concern. The dedication of the school district personnel is essential to provide the energy required to produce annual quality documents.

The implementation of the action plan involved the Grande Prairie Public School District and the County of Grande Prairie. Each district provided volunteer pilot schools to begin the development of school profiles. Once identified, our project team members informed the school administrators of the methods of collecting, presenting, and processing the data involved in the development of school profiles. Each school produced both a comprehensive school profile and a public profile. The comprehensive school and district profiles contain the results of all annual data and are accessible to all stakeholders in the school district on request. The format of the district report does not specifically identify individual schools, but blends the results into a district profile. Public profiles are condensed versions of the comprehensive school and district profiles. The public profiles use short descriptions, charts, and graphs to communicate various quality indicators.

Individual school profiles reflect the needs of the individual school community that may result in different profiles for each school. The quintessential objective of the school profile is to provide school stakeholders with information that is meaningful and useful to them in planning school improvement and measuring the educational health of their schools. This objective was the driving force that necessitated collaboration among stakeholders to monitor improvement projects and to initiate required changes.

Sample

A project team of local school administrators and practitioners was formed at the beginning of the project. This team met with stakeholder groups to initiate the collaborative identification process. After the introduction of the study, the stakeholders were asked to break into groups to brainstorm their quality indicators of an effective school district. Using the listed items from the

brainstorming activity, the groups were asked to rate their indicators from most important to least important. Once the groups listed their items in order of priority, they shared their results with one another. During this phase of the project, the team interviewed a large number of stakeholders. Table 1 presents the stakeholders contacted during this stage. The column entitled “Stakeholders” represents the classification of stakeholder groups, column two entitled “Number” presents the number of stakeholders interviewed, “Population” represents the total number of stakeholders in each classification in the school district, “% of Population” reflects the percentage of stakeholders contacted compared to the district’s actual population, and “% of Participants” indicates the percentage of type of stakeholder compared to the total number of participants in the survey.

The indicators identified by the stakeholders were grouped and categorized into four main areas with identified measures and the source of each measure. Table 2 presents the results.

Satisfaction Survey

The project team designed a satisfaction survey using the indicators identified by the stakeholders. Students distributed and collected the surveys from their parents, which resulted in a high return rate. The exception to this method was at the high school where an adult conducted a random telephone survey of parents. The students and staff at the pilot schools were surveyed by their project team member. This method also provided the project with a high return rate that resulted in a decision to target all students and staff in future surveys. The public stakeholder group was contacted using trained student interviewers who conducted a random telephone survey. Contact was made with 176 or 3% of the target population. Contact with parents in the four pilot schools ranged from 11% to 45%, with staff from 71% to 100%, and with students from 13% to 96%.

Public reception to this survey was positive and it is recommended for future use. The surveys were computer scored to provide feedback quickly and efficiently. The survey results reported the response of stakeholders to

Table 1
Stakeholder Involvement in Identifying Indicators
September 1990 to May 1991

<i>Stakeholders</i>	<i>Number</i>	<i>Population</i>	<i>% of Population</i>	<i>% of Participants</i>
Educators	242	270	90	13
Public	204	5,962	3	11
Parents	1,042	3,531	30	54
Students	319	4,700	7	17
Administrators	36	36	100	2
Support Staff	84	163	52	4
Total	1,927	14,662	13	101

Table 2
Quality Indicators

<i>Indicator</i>	<i>Measures</i>	<i>Sources</i>
<i>Student Achievement</i>	provincial achievement tests diploma exams post graduate success Canada Fitness Award teacher assigned marks affective education retention rates attendance	grades 3, 6 & 9 students grade 12 students graduate questionnaire medals count marks table programs, awards, participation district statistics district statistics
<i>School Climate</i>	climate student morale staff morale turnover behavior attendance lates expulsions dropouts	questionnaire questionnaire questionnaire district statistics district statistics district statistics district statistics district statistics district statistics
<i>Quality of Instruction</i>	professional attributes inservice substitute days instructional methods expectations monitoring curriculum	personnel records budget expenditures school reports site administrator school/district policy site administrator administrator
<i>Funding</i>	cost efficiency staffing	secretary-treasurer personnel officer

each question of the survey in the school and district comprehensive profile. The questions in the survey were labeled according to the four main indicator categories of the project: student achievement, school climate, quality of instruction, and funding. Table 3 presents the aggregated results, which provide a baseline for future administrations of the satisfaction surveys.

Generally, about two thirds of respondents were satisfied with education in the district. Overall, elementary students were the most satisfied group on achievement, school climate, and quality of instruction. Parents were generally more satisfied than teachers, secondary students, and the public. Teachers were most satisfied with student achievement and least satisfied with funding. The public was most satisfied with funding. Of interest is the percentage of respondents who felt they needed more information; members of the public in particular expressed this need.

Discussion

The challenges and rewards encountered during the project provide our school district with an invaluable base of experience and knowledge that will serve us well in our continuing efforts toward stakeholder involvement and

Table 3
Grande Prairie Stakeholder Satisfaction in May 1991 (Percent)

<i>Indicator</i>	<i>Parents</i> (N=456)	<i>Elementary Students</i> (N=531)	<i>Secondary Students</i> (N=571)	<i>Staff</i> (N=253)	<i>Public</i> (N=176)
<i>Student Achievement</i>					
Satisfied	66	76	54	75	55
Dissatisfied	12	14	29	12	18
Need Information	14	9	14	8	26
Unimportant	0	0	0	0	1
No Response	8	2	3	6	1
<i>School Climate</i>					
Satisfied	73	74	59	62	57
Dissatisfied	10	14	23	25	18
Need Information	9	9	12	6	21
Unimportant	0	0	0	1	2
No Response	8	3	6	6	1
<i>Quality of Instruction</i>					
Satisfied	67	75	62	62	53
Dissatisfied	9	13	27	26	15
Need Information	16	10	11	5	29
Unimportant	0	0	0	1	1
No Response	8	2	0	6	2
<i>Funding</i>					
Satisfied	69	65	69	48	76
Dissatisfied	8	22	24	35	8
Need Information	12	10	7	8	13
Unimportant	1	0	0	2	3
No Response	10	3	0	7	0

Note. Percentages may not total 100 due to rounding.

school improvement. Throughout the term of the project we celebrated our successes and learned valuable lessons from our mistakes.

The involvement of our stakeholders in the process was the basis for any success we achieved during the study. We strongly recommend the face-to-face interview format for establishing the basic indicators of quality education. Our partner the county did not develop the base indicators through collaboration with their stakeholders, but rather used those we developed. Consequently, the acceptance and enthusiasm experienced in working with the city stakeholders was not repeated with the county stakeholders. We recommend that any district replicating this project include the interview methodology to develop local indicators. Studies show the indicators will be similar, but the process of contacting and dialoguing with one's community cannot be over-emphasized.

Technology served the project team well in gathering, analyzing, and reporting the data gathered. It also streamlined the labor intensive task of gathering and recording data. Templates have been developed that require school sites to handle data once only while enabling all reports to be generated from that data base. A Macintosh computer and a laser printer, a spreadsheet

program, a word processing program, and a data base are the requirements to produce annual profiles. We are presently adapting a software package that will store and report on all indicator data identified during the study. The technology will not add to the labor requirement in schools and will also centralize all information for easy access and use.

Another attribute of the study was the use of a common language. Stakeholders used the same terminology to discuss and report on educational issues. We will develop and maintain informed stakeholders of education in

Student Achievement

Each August in Grande Prairie, approximately 400 Composite High School students watch for the mailman with mixed feelings.

Why? Because the results of their June diploma exams are due. And as one student puts it, "The diploma exams are probably the most important exams that we ever write. They determine our future."

How did our students do?

In all exam courses except for math, over 90% of students passed the diploma exam courses. In addition, there were slight increases in the number of students writing the diploma exams. In English 30, 18 more students wrote diploma exams in 1990/91 as compared to the 1989/90 school year. In English 33, Biology 30 and Chemistry 30, between 4 and 16 more students completed the course this past school year.

Teachers marking English and Social Studies found that students' writing continues to improve. In Grande Prairie 20% (or 1 in every 5) of our Chemistry and Physics students achieved the standard of excellence with marks of 80 per cent or higher in June.

In math, it is another story. Eighteen per cent of our students failed Math 30 this June. At the same time 14% of our Math 30 students (as compared to 20% provincially) achieved the standard of excellence.

Derek Taylor, Superintendent of Schools, noted that students performed well in most courses but the math marks were a concern. He stated that provincial exams are demanding and the department sets high standards for Alberta students but, in most cases our students are up to the challenge.

He explained that in math, we expect students to know more than just the technical details of how to find the right answer. They have to be able to combine an understanding of math concepts, an ability to apply procedural skills and complete accuracy in order to get full marks.

Although a number of students are able to do the technical work, they have difficulty applying that knowledge to new situations or real life problems. Our teachers and students have more work to do. A number of steps will be taken to address concerns about results.

A new provincial Math 30 curriculum to be implemented in September will place more emphasis on understanding and applying math concepts and skills. The growing emphasis on science and technology, requires students to have more than just the basic skills in math. Math is the foundation for sciences and other highly technical fields and our students have to be able to compete with the best.

Second, math department staff will be analyzing the exam results very carefully, looking at the areas where students did well and where they had problems. This detailed information goes to school jurisdictions and to teachers in September to help them address the problem students are having in applying math concepts.

Third, Alberta Education is preparing a teachers' resource book highlighting the use of mathematics in business and industry. About 30 real-life problems, submitted to the department's math exam developed by engineers, geophysicists, and accountants, will be included. This resource will be available for teachers in early November.

Figure 1. Excerpt from Grande Prairie's 1990-1991 Annual Report.

the Grande Prairie Public School District. The profiles also provide stakeholders with information on education in the district that also will develop trust and communication among all groups. Figure 1 presents an excerpt from the school district's Annual Report that demonstrates this honesty with the superintendent's comments regarding the performance of grade 12 students on the diploma examinations in the 1990-1991 school year.

The survey results were aggregated to reflect the results of each stakeholder group and each clustered indicator group. The results were published in two documents entitled Comprehensive School Profile, one to be housed at the home school and one at the district office. The district produced a document that reflected the aggregated results of the pilot schools into a district report. The results of the surveys, as well as the compilation of data related to all the indicators, were published in each school as a comprehensive school profile. Again, the district compiled the results into a similar comprehensive district profile. The schools and the district subsequently produced four-page documents for other stakeholder groups regarding the educational health of the school district. The comprehensive documents provide baseline data for School and District Improvement Teams to assess and plan educational improvements in their schools and their district. Subsequent annual profiles will provide these teams with feedback on any changes that have occurred as a results of their efforts. This feedback allows for more efficient planning and more accountability in education in the school district.

The annual stakeholder survey results are an integral part of the annual school improvement planning process. The initial benefit accrued from the surveys is the validation of perceptions that planners or educators may have about stakeholder concerns or attitudes. An example of the validation of perceptions is best illustrated by a meeting with teachers in one of the pilot schools concerning student programming. During the discussion, a teacher commented, "Parents already think we're doing a terrible job educating their kids." Our project team had just completed the compilation of the data from the satisfaction surveys and the teacher was informed that 80% of the parents of the school district responded either very satisfied or satisfied to the question, How satisfied are you with the quality of education your children are receiving? Further, it was revealed that 97% of the parents of that particular school responded either very satisfied or satisfied.

The surveys also flag educational areas that may require further investigation. On the comparison of the second staff satisfaction survey results with the first survey in one school, the administration was puzzled by the response of the staff to the question of the performance of school administrators. Examination of the comparative graphs revealed a drop of over 25% in the satisfaction of staff with the performance of school administrators. The drop in satisfaction levels of the school staff seemed at first glance to indicate a negative staff response to the performance of school administrators. Further study, however, showed no substantive increase in staff dissatisfaction with the school administration. As recommended in the improvement action process, further investigation was conducted by the school administration. In exploring the *Need more information* category, the administration noticed a substantive increase in the staff response. The next step in the investigation was to look at any

changes that might have occurred from the time of the 1991 survey to the 1992 survey. The results were soon explained by the fact that the school staff had acquired five new members from the first to the second survey. The new staff felt they did not have enough information to properly rate the present school administration. The value of the detailed data for this exploration was obvious. The administrators did not assume the staff was losing confidence in their performance and embark on a time-consuming, costly plan to regain its confidence. They addressed the initial flagged data, explained the changes to their satisfaction, and proceeded to dedicate their efforts to more important matters.

The result of the Grande Prairie study is the communication of the performance of education in the district to stakeholders. The satisfaction survey results emphasize the need of the public and parents for more information on many of the identified indicators. The collection of the data will become much more efficient in the schools and more centralized at the district office. The use of computer technology to collect and report the data will provide all stakeholders with information that can be easily accessed and properly interpreted and used in assessment and improvement of the district. This electronic data gathering and storing method has put the Grande Prairie School District in an excellent position to participate in the electronic information exchange being advocated by Alberta Education.

Conclusions

Individual school profiles report on specific areas as directed by the superintendent and also reflect the needs of the individual school community resulting in different profiles for different schools. The quintessential objective of the school profile is to provide school stakeholders with information that is meaningful and useful to them in planning school improvement and measuring the educational health of their schools. This objective is the driving force that necessitates collaboration among stakeholders to monitor improvements and to initiate required changes.

The production of annual school and district profiles will be a continuous process in the Grande Prairie Public School District. The instruments will provide interested stakeholders with current and valuable data not only to judge the health of their educational system but also to identify specific areas in need of attention. Annual feedback allows the schools to measure progress or the effect of efforts to improve areas of education. If the feedback indicates the efforts have not produced the expected or desired results, school teams may decide to abandon or change their action plans. This feedback enables schools and school districts to become much more efficient and effective in delivering education to their clientele. A more effective and efficient educational system, as identified by stakeholders, will result in a positive educational experience for all.

References

- Austin Independent School District. (1987). *Summary of quality indicators*. Austin, TX: Office of Research and Evaluation.
- Baker, E.L. (1987). *The effectiveness of American education*. Los Angeles, CA: UCLA Center for the Study of Evaluation.

- Brookover, W.B., & Lezotte, L.W. (1977). *Changes in school characteristics coincident with changes in student achievement* (Occasional Paper No. 17). East Lansing, MI: Michigan State University.
- Codianni, A.V., & Wilbur, G. (1983). *More effective schooling from research to practice*. New York: ERIC Clearinghouse on Urban Education, Teachers College, Columbia University.
- Covey, S.R. (1991). *Principle-centered leadership*. New York: Summit.
- Crosby, P.B. (1980). *Quality is free*. Scarborough, ON: New American Library.
- Edmonds, R. (1978). *A discussion of the literature and issues related to effective schooling*. St. Louis, MO: Cemrel.
- Frederick, J.M. (1987). *Measuring school effectiveness: Guidelines for educational practitioners*. Washington, DC: Office of Educational Research and Improvement.
- Fullan, M.G., & Hargreaves, A. (1991). *What's worth fighting for?* Toronto, ON: Ontario Teachers' Federation.
- Mann, D. (1990). It's time to trade red tape for accountability in education. *The Executive Educator*, 12(1), 3.
- Oakes, J. (1986). *Educational indicators: A guide for policymakers*. New Brunswick, NJ: Center for Policy Research in Education.
- Peters, T.J., & Waterman, R.H. (1982). *In search of excellence*. New York: Warner.

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Spirit River School Division No. 47

Effective Teaching Does Make a Difference

Given the belief that the teacher is indeed the key to effective instruction, the Educational Quality Indicators Project for the Spirit River School Division involved developing and validating a set of indicators that can be used to assess teacher effectiveness in formative and summative processes. All the key stakeholders in education were consulted in this process: teachers, administrators, students, and parents, with teachers playing the largest role largely as a result of their direct responsibility for the quality of the teaching-learning situation. The project focused on professional development and staff inservice. A collegial, nonthreatening model for more effective teaching using formative supervision and observation was developed and implemented over three years.

Confiant que l'enseignant(e) est, en effet, la clé de l'enseignement efficace, le projet Educational Quality Indicators Project de la commission scolaire de Spirit River School Division développa et validifia une série d'indicateurs pouvant être utilisés pour évaluer l'efficacité des enseignant(e)s dans les processus d'évaluation formative et sommative. Tous ceux intéressés dans l'éducation ont été consultés: les enseignant(e)s, les administrateurs et les administratrices, les élèves et les parents. Le rôle de l'enseignant(e) était le plus important puisqu'il(elle) était en grande partie le(la) plus responsable de la qualité de la situation enseignement-apprentissage. Le projet visait le développement professionnel et les cours de formation pour le corps professoral. Un modèle collégial et non menaçant ayant comme objectif de rendre l'enseignement plus efficace en utilisant la supervision formative et l'observation fut développé pendant une période de trois ans.

Introduction

Spirit River School Division No. 47, a small rural jurisdiction located in northwestern Alberta, is concerned with providing the best possible educational opportunities for its students within the framework of a healthy and positive organizational environment. To this end a number of monitoring and evaluation ventures have been undertaken during the past few years to provide data on which to launch and continue improvement efforts at the class-

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room, school, and system levels. As a natural and evolutionary step in the formulation of this emerging monitoring system, this project served to consolidate, integrate, and maximize the effectiveness of these processes.

Few would argue that teacher behavior in the classroom has an impact on student outcomes. Typical of numerous educators and researchers, Broudy (1975) states: "The teacher is still the key to schooling; with good teaching, almost any curricular, school organization, and administrative invention seems to succeed" (p. 64). The criteria by which to measure teacher effectiveness are of central importance to the concept of teacher effectiveness and evaluation.

Purpose

A wealth of information on effective teaching behaviors, substantiated by practical research, has emerged over the last few decades. The Spirit River School Division EQI Project involved identification and validation of a set of indicators that can be used to assess teacher effectiveness. The criteria by which to measure teacher effectiveness are of central importance to the concept of teacher evaluation and effectiveness. Normed measures of teacher behavior have been established, and student affective and cognitive outcomes as they relate to those behaviors are being measured.

The question posed was: Do the 26 teaching behaviors, identified in Table 1, have an impact on student outcomes in both the cognitive and affective domains?

Teacher Effectiveness and Evaluation

Being an effective teacher in the times of Socrates and Aristotle was, as Travers (1981) points out, "to be a good person who attracted students" (p. 14). The prospect of relating good teaching to a single criterion in today's educational context is considerably more difficult, if not impossible. As King (1981) observes, "the more research on teaching that is done, the more it is becoming evident that there is no single way to be a good teacher" (p. 179).

Educational Goals

Teacher assessment criteria should vary according to the learning outcomes considered most appropriate. According to Grimmatt (1982), the normative end of the teaching spectrum is characterized "as consisting of a definable repertoire of knowledge, skills and attitudes ... that research has demonstrated are effective in leading to student gains" (p. 48). The view from the professional end sees "teaching more as a clinical process ... involving reflections and informed choices about which behaviors and strategies are most appropriate in specific teaching-learning situations" (p. 48). Although Grimmatt (like Darling-Hammond, Wise, & Pease, 1983) made a strong case for thinking of teaching tasks along a continuous line of increasing complexity, he conceded a polarized dichotomy has been prevalent in the past; at the normative end are those with an academic mission and at the other are those who are inclined toward a social and personal development mission.

Those espousing the content-oriented curriculum and a concern for productive use of time associated with the normative view generally advocate direct instruction methods. Grimmatt (1982) and others (Centra & Potter 1980; Darling-Hammond et al., 1983; Knapp, 1982) indicate that the majority of

Table 1
Indicators of Quality Instruction

1. *Sequentially Developed Planning and Preparation*

- 1.1 The teacher maintains/develops short, unit and long term, flexible plans with an evaluation process.
- 1.2 The teacher adheres to Curriculum/Program of Studies documents.
- 1.3 The teacher provides a safe and organized environment with resources and equipment readily available.
- 1.4 The teacher provides for individual learning needs with consideration of student abilities, based on diagnostic information.
- 1.5 The teacher provides a variety of learning activities.
- 1.6 The teacher ensures that objectives are stated.
- 1.7 The teacher provides for motivation of students.
- 1.8 The teacher makes learning activities relevant.
- 1.9 The teacher plans for interdisciplinary activities.

2. *Key Instructional Strategies*

- 2.1 The teacher circulates during pupil activities.
- 2.2 The teacher presents clear assignments which are relevant to student experiences.
- 2.3 The teacher exhibits classroom management skills.
- 2.4 The teacher provides an environment whereby active learning takes place within a working and nonthreatening atmosphere.
- 2.5 The teacher provides a physical classroom environment which is stimulating, enriched, relevant and has displays of student work.
- 2.6 The teacher exhibits a variety of questioning techniques.

3. *Communication Skills*

- 3.1 The teacher provides clear explanation of objectives, assignments and behavioral expectations.
- 3.2 The teacher exhibits a variety of positive reinforcement techniques.
- 3.3 The teacher is an active listener.
- 3.4 The teacher provides timely and relevant reviews.
- 3.5 The teacher uses language appropriate to the developmental level of students.
- 3.6 The teacher maintains regular parental information flow.

4. *Pupil/Teacher Relationships*

- 4.1 Mutual respect is exhibited between teacher and students.
- 4.2 Clear routines, expectations and rules are made known and followed.
- 4.3 The teacher provides for positive peer interaction and support.
- 4.4 The teacher uses a fair and meaningful evaluation process.
- 4.5 The teacher provides prompt feedback on student assignments.

teacher effectiveness research studies have been of the direct instruction sort, although a widening focus in the past decade is also reported. Those who put faith in this line of research seek “context-free generalizations about what leads to and constitutes effective teaching” (Darling-Hammond et al., 1983, p. 293).

Less direct, more inductive approaches with a person and process curriculum orientation are generally advocated by those espousing the professional view. Instead of being rooted solely in process-product research, Grimmett (1982) states:

Exploratory research using ethnomethodological, phenomenological, and cognitive information processing methods are consulted to describe classroom

phenomena with a view to increasing understanding rather than producing generalizable statements about process-product correlation. (p. 66)

It is apparent that criteria appropriate to judge teacher effectiveness at one end of the direct-indirect continuum may not be appropriate at the other end.

Teacher Evaluation Criteria

A sampling of the educational literature dealing with effectiveness and evaluation reveals that terms such as *variables*, *measures*, *indicators*, *competencies*, and *criteria* are often used interchangeably. Nevertheless, there appears to be some agreement on a more precise definition. Mitzel (1960) clarifies the way in which the term is most often used with reference to teacher effectiveness:

The term criterion is commonly attached to any set of observations that may be used as standard for evaluative purposes. In this sense a criterion measure cannot be merely any dependent variable which happens to be at hand. Calling a particular measure a criterion lends to its connotations of worth and value. Criteria cannot be trivial; otherwise evaluations are made against trivial standards. (pp. 1481-1482)

The relationship between standards and criteria is expressed by Lawton, Hickcox, Leithwood, and Musella (1986):

Criteria ... refer to indicators that measure some quality or behavior; some might be quite complex, such as the style of classroom management, while others might be straight forward, such as punctuality. Standards refer to the level of expectations regarding criteria. (p. 4)

Not only must a criterion be an indicator, or a variable, it must be a meaningful indicator. As criteria can be quite specifically defined, so too can they be thought of as broad categories.

From a close analysis of four models of teaching (Centra & Potter, 1980; Dunkin & Biddle, 1974, cited in Grimmett, 1982; Medley, 1982; Mitzel, 1960) it is apparent that virtually every criterion by which the quality of teaching can be judged fits into three groups: presage, process, and product. Presage refers to teacher characteristics, process to teacher performance and student behavior, and product to student outcomes. Today presage criteria are widely used in teacher evaluation. In the past they enjoyed even wider application. Detractors find fault with extensive use of presage criteria. Ryan and Hickcox (1980) state that "the rating forms themselves include a good proportion of categories having to do with personality, dress, appearance, which have little relation to instructional improvement" (p. 21). Advocates for the inclusion of these criteria in teacher evaluation systems see the situation somewhat differently. Sweeney (1980) feels it is important to assess teachers on their humanistic qualities and speaks of the teacher as an "institutional representative [who] must carry the flag for his school and profession in a manner which enhances the image and status of both" (p. 12).

Research on teaching has sought to identify teacher and student behaviors (process criteria) that influence learning. Duhamel, Cyze, Lamacraft, and Larocque (1979) state that it is not surprising that process indicators are the most frequently used criteria in present evaluation practices. The significant assumption on which the use of these criteria is based is "that congruence with

these behavioral norms produces effective teaching” (p. 27). Many scholars feel that several behaviors have shown a consistently high correlation with learning outcomes and should, therefore, be included as criteria to determine teacher quality. Researchers continue to refine observation techniques, establish validity and reliability, and make the process yet more objective. Evertson and Holley (1981) state:

Classroom research has recently made progress in identifying process variables that are good indicators of effective teaching as measured by achievement. A picture of what effective teaching looks like in the classroom is beginning to emerge, and the assessment of teachers by means of observation can now be regarded as a meaningful activity. (p. 107)

Apprehensions over the teacher evaluation applications of performance criteria generally have to do with their overuse or misuse. Hickcox (1982), among others, cautions against exclusive reliance on observations:

We know for certain that a principal sitting in the back of the room with a notebook and a rating sheet once a year or once every three years is not going to produce a rating that has any reliability or validity. (p. 1-4)

“Observer bias, insufficient sampling of performance, and poor measurement instruments can threaten the reliability and validity of results,” warn Darling-Hammond et al., 1983, p. 306).

In contrast to presage and process criteria, the use of product variables is not widespread. Proponents of this approach assume that at least a portion of student learning can reasonably be attributed to the efforts of teachers. Haefele (1980) and Darling-Hammond et al. (1983) identify a number of approaches that can be used to assess teacher effectiveness on the basis of standardized tests. The difficulty in linking student outcomes to teaching performance is recognized by Centra and Potter (1980), among others, who noted that “student achievement is affected by a considerable number of variables of which teacher behavior is but one” (pp. 286-287).

Selecting Teacher Assessment Criteria

Judicious selection of criteria should be undertaken only after the following questions have been carefully considered. What are the purposes of evaluation? Who will decide which criteria to use? Will the criteria apply to all teachers, or will their appropriateness be based more specifically on the unique nature of individual assignments?

Duncan (1984) lists the eight purposes for teacher evaluation delineated in Alberta Education’s Program Policy Manual. They are:

1. To promote, achieve and maintain an acceptable quality of instruction.
2. To help improve performance of teachers in securing desirable instructional outcomes.
3. To provide information which will be useful when considering placement of staff, transfer, retention, promotion, tenure, and permanent certifications.
4. To provide specific feedback concerning teacher performance.
5. To provide professional assistance to teachers in the performance of teaching tasks.
6. To provide a basis for planning inservice programs.
7. To provide written evaluation reports on teachers in public and private schools for purposes of documentation, as required.
8. To assist teachers in professional growth and development. (pp. 4-5)

Teacher evaluation procedures are generally divided into two categories on the basis of purpose. The two broad purposes are generally labeled either as summative (for administrative decision) or formative (for improvement of teaching). The first, third, and seventh of the Alberta purposes listed above fit into the summative category, while the remainder better fit the formative category.

Assessment of Teacher Performance

Effective schools research has found strong correlations among the principal's expectations of teachers, teachers' expectations of students, and student achievement. As the instructional leader, the principal's role is to establish with staff specific learning expectations, deliver to teachers the necessary materials to carry out the instructional programs, and continuously evaluate the level of mastery of students and staff (Brookover & Lezotte, 1979; Leithwood & Montgomery, 1982; Manasse, 1984).

Numerous scholars and practitioners question the effectiveness of teacher appraisal in improving the quality of classroom instruction. Acheson and Gall (1987), Calabrese (1986), and Bartalo (1988) suggest it is difficult to connect specific teacher behaviors with student outcomes. DeRoche (1981), Johnson and Snyder (1986), and Leithwood and Montgomery (1982) write of the principals' inability to distinguish between effective and ineffective instruction. Calabrese (1986) and Furst (1971) note that when variances in the interpretation of a teaching segment are noted, effective teaching seems to be based on trust more than on sound pedagogy. Others have attributed the weaknesses to the lack of appropriate training.

A program that involves principals and lead teachers in collaborative efforts to assess instructional programs and to recommend reform would address some of the concerns expressed. Such a program requires adequate time to be understood, provision for the application of skills, and the establishment of a collegial relationship (Hunter, 1988; Manatt, 1988).

Common sense and a knowledge of organizational theory would strongly suggest that teachers should play a large part in helping to set the criteria by which their work is to be judged. Clear communication of exactly what is meant by each criterion used to judge the quality of teachers is another factor of the utmost importance to the eventual success of the evaluation process.

Project Description

Rationale

With a focus on teaching behaviors, the Spirit River School Division EQI Project involved the development and validation of a set of indicators that can be used to assess teacher effectiveness in a formative process. Experience and the literature clearly suggest that teacher and administrative involvement in choosing educational indicators is critical to the success of a project such as this. For any project involving key components of action research, it is essential to gain the acceptance, involvement, and positive initiative of staff. The project was therefore the focus of internal professional development and staff inservice in a collegial, nonthreatening model for more effective teaching and benefit to students using formative supervision and observation. It sought to

focus the attention of the system on the wider range of student educational outcomes, affective and behavioral as well as cognitive.

It was hoped that the results would improve our own evaluation process while giving the province some practical quality educational indicators from the context of a rural school jurisdiction covering a large geographical area with a relatively low student enrollment.

Methodology

Voluntary support through acceptance and involvement was received from staff. More than 80% of all staff responded to a survey that asked them to indicate the criteria each felt were critical to improving teacher effectiveness. Eight experienced and respected teachers expressed a keen interest in serving on the local committee whose purpose was to finalize the criteria and establish the process and terms of reference for the project within the established guidelines.

This committee reviewed all pertinent research and literature and developed grouped sets of 26 indicators of effective teaching (Table 1), formulated key variables that could impact the effectiveness of implementation, and developed an action plan and consequent logistics and timelines for implementation in all division schools on a voluntary basis. The committee reviewed the input from staff and finalized the working project documents.

During the first year, all staff had the opportunity to meet and discuss the previously developed criteria of effective teaching or visit each other's classrooms to observe one or more of these specific, established areas. Data were collected on staff participation, specific objectives related to each subgroup of criteria, local or out-of-school contacts, and years of experience of participants. Information was then gathered on geographic distance, use of extra time provided in staffing, staff attitudes, and extended professional development activities. Two survey instruments were developed and validated using Good's (1963) validation criteria, and subsequently parents and students were surveyed to gain their perspectives of indicators of quality teaching. Surveys were distributed to all students in grades 9, 10, 11, and 12 and parents of students in grades 2, 5, 8, and 11. The intent of these representative surveys was to gain parent and student input into the process and criteria, while obtaining their perception on validity and/or development of new criteria. A teacher survey on satisfaction and professional development involvement was also conducted. The data gathered at the conclusion of the first year were collated and presented on a system level, thereby assuring the anonymity of participants.

In the second year of the project, the data collection process was expanded. A decision was made to enhance the credibility of the project as a research endeavor through the establishment of a teacher performance baseline to which comparisons could be made at a later point in time. Teaching behaviors with the lowest ratings were addressed at the system level through a variety of professional development activities.

A need was also recognized for additional student outcome measures relevant to the intent of the indicator system. The *Educational Quality Indicators: Inventory of Assessment Instruments* (Alberta Education, 1990) was consulted. Sample copies of a number of assessments instruments were reviewed and the

Classroom Environment Scale (Moos & Trickett, 1987) was selected for grades 5, 8, and 11, and the Student's Perception of Ability Scale (Boersma & Chapman, 1977) was selected for grade 2 to measure student outcomes in the affective domain. The former served to supplement data gained on cognitive outcomes measured by provincial diploma exams and achievement tests.

The data collected during the third-year process were identical to those of year two. Table 2 summarizes the data collected during the project.

The Findings

Student outcomes must be monitored over an extended period. Only then can comparisons be made, trends or themes identified, and results substantiated. As a result, only conclusions relating to strategies that have been successful in promoting the active involvement of professional staff in this change process are being shared, along with a brief reference to parental perception. Reference is made to student outcomes, but without speculation on the impact of modification of instructional strategies upon these outcomes.

Staff

The active, voluntary involvement of professional staff in action research was the most positive aspect of our EQI project. The value teachers attached to this project in terms of the professional growth opportunities it provided was clearly illustrated. Approximately 90% of teachers responding to the survey felt their involvement contributed to their professional growth.

Direct staff input into the development and validation of a set of indicators that can be used to assess teacher effectiveness in both formative and summative processes provided a sense of ownership and subsequently enhanced the likelihood of continued participation. The number of classroom visitations made each year is indicative of teachers' willingness to be active participants in this process.

Research provides considerable evidence to support the position that teachers should play a significant role in setting the criteria by which their

Table 2
Data Collection 1990 to 1992

Type	Indicator	Measure	Source
Staff	participation	number of visitations made to other teachers' classrooms	teachers
	professional development	number of teachers attending out-of-division PD activities	teachers
	teacher effectiveness	aggregate rating on each of the 26 teaching behaviors	evaluator
Parent	perceptions	survey of parents of students in grades 2, 5, 8, 11	parents
Student	perceptions	survey of students in grades 9, 10, 11, 12	students
	attitudes	<i>Student's Perception of Ability Scale</i> (grade 2) <i>Classroom Environment Scale</i> (grades 5, 8, 11)	students
	achievement	grades 3, 6, and 9 achievement tests grade 12 diploma examinations	students
	discipline	suspensions, expulsions, referrals to office, dropouts	administrators

performance is to be judged. Teachers in this jurisdiction did set the criteria to be used in the formative evaluation process, and subsequently supported adoption of these same criteria for the summative process. Ownership is having a positive impact on teachers' willingness to accept these as legitimate criteria.

Teachers have shown a willingness to modify teaching behaviors. Table 3 illustrates a change in the modal rating on a considerable number of criteria. Similarly, the mean rating has increased significantly on a number of criteria. Clear description of the meaning of each criterion resulting from discussions with colleagues and administration may have contributed to this positive change.

Teachers actively participated in the review and major revision of our student and school evaluation policies and processes to bring them on line with the indicators we have adopted. Under divisional sponsorship, a local committee of teachers produced a new teacher plan book we believe will have a positive impact on planning and reporting procedures. Two documents, a *School Improvement Handbook* and a *Student Evaluation Handbook*, were products of this project, both germane to promoting effective teaching.

The teacher questionnaire indicated strong support for the professional growth opportunities this project has provided. Typical of the written responses are the following: "A good project that promotes and facilitates teacher development." "I think this EQI project is very valuable to all teachers. It gives a good opportunity to observe others in action as well as to receive input to help enhance our classroom environments."

Parents

With few exceptions the parental survey results indicated a high level of support for the criteria currently being used to judge teacher performance. A safe and productive environment, attention to individual learning needs, clarity of objectives, the teacher being an active listener, and the entire area of pupil-teacher relationships are the highest priorities of parents. These factors have the highest impact on student attitudes toward school and subsequently on academic performance.

Students

In all three years there was generally reasonable consistency in responses of parents and students. Student opinion on any of the criteria was not as strong as that of parents. Without exception a significant proportion of students indicated "less important" as their rating of any particular criterion. Overall, however, the only significant disagreement between parents and students was regarding the flow of information to the home and the importance of the teacher circulating in the classroom. Students attached much less importance to these than did parents.

In general, our student achievement and diploma exam results fall within the acceptable range, some being above the provincial mean, others below. No obvious patterns are emerging. Similarly, the information we have gathered on affective outcomes will only become of value when used for comparison over an extended period. In order that we can appropriately assess the results and establish correlations, additional years of data collection and docu-

Table 3
Teacher Performance in 1991 and 1992

Criteria	1991 (N=82)		1992 (N=74)	
	Mean	Mode	Mean	Mode
<i>Sequentially Developed Planning and Preparation</i>				
1.1 plans	4.3	4	4.3	5
1.2 curriculum	4.3	4	4.8	5
1.3 environment	4.3	4	4.5	5
1.4 individual needs	4.2	4	4.1	5
1.5 variety	4.0	4	4.2	5
1.6 objectives	4.0	4	4.0	5
1.7 motivation	4.0	4	4.2	4
1.8 relevance	4.1	4	4.3	5
1.9 interdisciplinary	3.9	4	3.9	4
<i>Key Instructional Strategies</i>				
2.1 circulation	3.8	5	4.4	5
2.2 clarity	4.1	4	4.4	4
2.3 management	4.2	5	4.3	5
2.4 atmosphere	4.3	5	4.4	5
2.5 environment	3.9	4	4.0	5
2.6 questioning	3.9	4	4.0	4
<i>Communication Skills</i>				
3.1 explanation	4.1	4	4.1	5
3.2 reinforcement	3.6	4	4.1	4
3.3 listening	4.2	4	4.3	5
3.4 review	3.9	4	4.3	5
3.5 language	4.2	4	4.6	5
3.6 parents	4.0	5	4.0	4
<i>Pupil/Teacher Relationships</i>				
4.1 respect	4.4	5	4.3	5
4.2 expectations	4.2	5	4.2	5
4.3 interaction	4.2	4	4.3	5
4.4 evaluation	4.0	5	4.3	4
4.5 feedback	4.1	4	4.4	5

Rating scale: 1 very poorly addressed; 2 poor; 3 fair; 4 good; 5 excellent.

mentation are required. To terminate the process at this point may in fact be counterproductive. It is, therefore, our intent to continue with the data collection.

Discussion

At this time it is premature to speculate on the impact modification of instructional strategies is having on student outcomes. As a result, only conclusions relating to strategies that have been successful in promoting the active involvement of professional staff in this process can be shared. Other jurisdictions may see potential value for incorporating components of these strategies into plans of action they may be pursuing. With the support and involvement of staff, we believe the project is proving to have a positive and professionally

rewarding impact on teachers for the benefit of students. It is the impact on student outcomes that will continue to be the focus of this study.

We see two specific benefits developing out of this collegial approach to working and learning together for the benefit of children. First is the development of an appropriate response mechanism in the jurisdiction to allow professional staff, administrators, and parents to identify at-risk learning situations that may negatively impact students' ability to successfully complete their public education. Along with this there is the development of greater local ownership for professional growth and development opportunities.

Implications and Recommendations

Based on the findings of this study, the following implications were derived. Reference is made exclusively to teachers as they were the key players in this process. Staff support is crucial to the success of any intervention strategy. Without the voluntary support of teachers, a study of this nature and magnitude would not have been possible. Mandates were not a part of this process.

Staffs must be given the opportunity for voluntary involvement in the early stages of any project or study similar to this. This enhances the likelihood of acceptance and participation over an extended period.

Teachers must have the opportunity and the channels for feeding into the system. This generates an allegiance to the system of which they are a part. Under the leadership of central office administration, all decisions relating to this project were made by a local committee of teachers. This included the identification of indicators of effective teaching, formulation of key variables that could impact the effectiveness of implementation, identification of 26 teaching behaviors perceived critical to positive student outcomes, articulation of clear explanations of objectives, development, and selection of data gathering instruments, and the development of an action plan for implementation in all division schools.

Direction and support from the administration and the school board is critical to the potential for significant changes being made. The school board's commitment to this project, evident in funding provided to cover the cost of substitute teachers, the addition of a staffing component to all small schools, and the priority given the project in the division's Three Year Plan was perceived to be proof of support for the project and its intent. This has provided the time teachers need for planning and implementation.

Tangible benefits or results enhance the likelihood of continued commitment and participation. Rewards, whether intrinsic or extrinsic, serve as motivational tools.

Project Follow-up

The Board of Trustees of the Spirit River School Division, with the support of senior administration, has made a commitment to carry on with the study. Funding has been budgeted to cover costs of substitute teachers and the additional staffing component in our small schools for the 1992-1993 school year.

The extensive data collection currently in place will be continued. We are now completing only our first measurements of the effectiveness of modifying

instructional strategies. In order that we may appropriately assess the results and establish correlations, should these results support this, additional years of research and documentation are required. To stop the process at this point would have a negative impact on the accomplishments of the last years.

It is also our intent to continue to inform our publics of the efforts being directed at making our schools better places for students. The local media and our school newsletters will continue to serve as the primary disseminators of information to the public. Discussions, productions, and presentations at special events such as Education Week augment this process. Our ability to demonstrate to our publics that education is an excellent investment in our children and our future must always be a high priority.

Conclusions

Teachers do make a difference! This EQI project has been a positive experience for many stakeholders in the Spirit River School Division. We believe that the project is already having a strong and professionally rewarding impact on teachers for the benefit of our students.

Using the same criteria for both summative and formative evaluations has heightened teacher awareness regarding professional expectations. The clear focus on learner needs and student outcomes and the staff development opportunities that are being provided could be employed effectively in any district. Similarly, the three documents prepared in the course of our own involvement in this project, the *Student Evaluation Handbook*, the *School Improvement Handbook*, and the *Teacher Planbook*, are all germane to promoting effective instruction in the classroom.

Although we are not able to substantiate any positive impacts our involvement has had in terms of student outcomes, we believe that the project is already having a strong and professionally rewarding impact on teachers for the benefit of our students. Our project is exemplary in its involvement of all professional staff. Such extensive involvement of all the stakeholders, including students and parents, has the potential for paying large dividends.

Acknowledgment

On behalf of all the stakeholders in education in the Spirit River School Division we take this opportunity to express to Alberta Education our appreciation for inviting our participation in the EQI initiative.

References

- Acheson, K., & Gall, M. (1987). *Techniques in the clinical supervision of teachers*. New York: Longman.
- Alberta Education. (1990). *Educational quality indicators: Inventory of assessment instruments*. Edmonton: Corporate and Fiscal Planning.
- Bartalo, D. (1988). Turn "B" teachers into "A+s." *The School Administrator*, 11(45), 15-17.
- Boersma, F.J. & Chapman, J.W. (1977). *Student's perception of ability scale*. Edmonton: Psi Can Consulting Ltd.
- Brookover, W.B., & Lezotte, L. (1979). *School characteristics associated with changes in student achievement*. East Lansing, MI: Institute for Research on Teaching, Michigan State University.
- Broudy, H.S. (1975). Can we define good teaching? In M.M. Carney (Ed.), *Teaching: issues, perspectives, and definitions* (pp. 63-65). New York: MSS Information Corporation.
- Calabrese, R. (1986). Effective schools and classroom instruction. *The Clearing House*, 59(6), 272-274.
- Centra, J.A., & Potter, D.A. (1980). School and teacher effects: An interrelational model. *Review of Educational Research*, 50, 273-291.

- Darling-Hammond, L., Wise, A.E., & Pease, S.R. (1983). Teacher evaluation in the organizational context: A review of the literature. *Review of Educational Research*, 53, 285-328.
- DeRoche, E. (1981). *An administrator's guide for evaluating programs and personnel*. Boston: Allyn and Bacon.
- Duhamel, R.J., Cyze, M.F., Lamacraft, G., & Larocque, S. (1979). Teacher evaluation. *Education Canada*, 19(4), 26-31.
- Duncan, A.N. (1984). *Teacher evaluation practices in Alberta*. Edmonton: Planning Services, Alberta Education.
- Evertson, C., & Holley, F.M. (1981). Classroom observation. In J. Millman (Ed.), *Handbook of teacher evaluation* (pp. 90-109). Beverly Hills, CA: Sage.
- Furst, N. (1971). Classroom observation systematic. In I. Deighten (Ed.), *The encyclopedia of education* (pp. 1260-1275). New York: Macmillan.
- Good, C.V. (1963). *Introduction to educational research: Methodology of design in the behavioral and social sciences* (2nd ed.). New York: Appleton-Century-Crofts.
- Grimmett, P.P. (1982). Teachers and research on teaching: Opportunities for professional growth. *Teacher Evaluation*, 22(3), 31-71.
- Haefele, D.L. (1980). How to evaluate thee, teacher let me count the ways. *Phi Delta Kappan*, 61(5), 28-31.
- Hickcox, E.S. (1982). Dilemmas in teacher evaluation. *Teacher Evaluation*, 22(4), 1-4.
- Hunter, M. (1988). Create rather than await your fate in teacher evaluation. In S. Stanley & W.K. Popham (Eds.), *Teacher evaluation: Six prescriptions for success* (pp. 32-54). Alexandria, VA: Association for Supervision and Curriculum Development.
- Johnson, W., & Snyder, K. (1986). Instructional leadership training needs for school principals. *Journal of Educational Administration*, 24(2), 237-253.
- King, J.A. (1981). Beyond classroom walls: Indirect measures of teacher competence. In J. Millman (Ed.), *Handbook of teacher evaluation* (pp. 167-179). Beverly Hills: Sage.
- Knapp, M.S. (1982). *Toward the study of teacher evaluation as an organizational process: A review of current research and practice*. Paper presented at the Annual Meeting of the American Educational Research Association, New York.
- Lawton, S.B., Hickcox, E.S., Leithwood, K.A., & Musella, D.F. (1986). *Development and use of performance appraisal of certificated education staff in Ontario school boards*. Toronto: Ontario Ministry of Education.
- Leithwood, K., & Montgomery, D. (1982). The role of the elementary school principal in program improvement. *Education and Urban Society*, 17(1), 49-71.
- Manasse, A.L. (1984). Principals as leaders of high-performing systems. *Educational Leadership*, 41(5), 42-46.
- Manatt, R. (1988). Teacher performance evaluation: A total systems approach. In S. Stanley & W.J. Popham (Eds.), *Teacher evaluation: Six prescriptions for success* (pp. 79-108). Alexandria, VA: Association for Supervision and Curriculum Development.
- Medley, D.M. (1982). Teacher effectiveness. *Encyclopedia of educational research* (5th ed., pp. 1894-1903). New York: Macmillan.
- Mitzel, H.E. (1960). Teacher effectiveness. *Encyclopedia of educational research* (3rd ed., pp. 1481-1485). New York: Macmillan.
- Moos, R.H., & Trickett, E.J. (1987). *Classroom environment scale* (2nd ed.). Palo Alto: Consulting Psychologists Press.
- Ryan, D.W., & Hickcox, E.S. (1980). *Redefining teacher evaluation: An analysis of practices, policies and teacher attitudes*. Toronto: Ontario Institute for Studies in Education.
- Sweeney, J. (1980). Assessing teachers as humanists and team players. *The Trustee*, 50(4), 12-13.
- Travers, R.M. (1981). Criteria of good teaching. In J. Millman (Ed.), *Handbook of teacher evaluation* (pp. 14-22). Beverly Hills, CA: Sage.

Phyllis Geddert

Fort McMurray RCSSD No. 32

Student Success Through Outcome-based Education

Educational restructuring efforts based on the principles of Outcome-based Education (OBE) focus on success for all students. The OBE principles that teachers implement to produce student success are: clearly defining what is significant for students to learn and designing down from these significant or "exit" outcomes, maintaining a clear focus on the exit outcomes, holding high expectations for all students to perform well, and providing expanded opportunities and support for learning. The results suggest that the collaborative implementation of these principles produced gains in student achievement, attitudes, and responsibility. The project provides a picture of the OBE processes and results in mathematics.

Les efforts d'une restructuration éducative basée sur les principes du Outcome-based Education (OBE) visent à la réussite de tous les élèves. Les principes de OBE qu'utilisent les enseignant(e)s pour promouvoir le succès chez les étudiant(e)s sont: de déterminer ce qui est important pour les élèves d'apprendre et de développer du matériel en conséquence afin de déterminer des résultats finals, de maintenir une vision claire et nette des résultats finals, de maintenir des attentes élevées pour que tous les élèves réussissent, et leur offre l'appui et de vastes opportunités d'apprentissage. Les résultats de ce projet suggèrent que la collaboration d'implantation de ces principes a produit des résultats favorables dans l'atteinte des objectifs, dans l'attitude et dans la responsabilité des élèves. Le projet présente un aperçu des processus d'OBE et des résultats en mathématiques.

Introduction

In 1989 educators in Fort McMurray Catholic Schools faced several challenging questions. What evidence did we have that our students were learning what was important? What learning did we consider essential for all students? Did we believe that all students could learn? Were we maintaining high expectations for the success of all students? Did our indicators tell us how many students were learning well?

These questions generated further queries. Who determined when "good" was "good enough"? How could all students learn well if they learned in different ways and at different rates? What political hurdles would we face if we attempted to change the prevalent minimum competence expectations? Would our parents support the concepts of high expectations and expanded opportunities?

At the invitation of the superintendent, two district schools volunteered to participate in the Outcome-based Education (OBE) pilot project. A district OBE team, comprising teachers, administrators, central office staff, and a parent representative, was formed to address questions and issues collabora-

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tively and to design a process through which the four principles of OBE could be implemented. The OBE pilot schools included an Early Childhood ECS to grade 9 school, with an enrollment of 636 students, and a high school, grades 10 to 12, with an enrollment of 760 students.

The OBE project was implemented in approximately 30 grade 2 to 10 mathematics classes per year. Twelve to 15 teachers implemented the process annually. Six hundred to 700 students participated in the project annually. The purpose was to determine what effects, if any, the implementation of the OBE beliefs and principles might have on student achievement, attitudes, and responsibility.

Outcome-based Education

A literature review was conducted to determine the research base of the OBE beliefs and principles and the use of indicators in education. The literature provided valuable planning insights for our project. It pointed to a trend that called for the rethinking of our educational vision for all students. What should all students be demonstrating to be successful in the 21st century?

The literature also pointed to some classroom, school, and district practices that were more effective than others in promoting achievement and affective outcomes. Rubin and Spady (1984) demonstrated the value of continuous learning based on mastery of prerequisite outcomes. Between 1987 and 1990, Spady wrote several articles on school reform and challenged educators to consider their current practices and beliefs. He challenged the beliefs resulting from the representations of the bell curve and traditional systems of grading. The four principles of Spady's High Success or Outcome-based Education process are designing down from where you want to end up (developing exit outcomes of significance), maintaining a clear focus on significant outcomes, providing appropriate time and support for learning, and maintaining high expectations and standards for all students to demonstrate success. These principles are based on the philosophy that all students can learn and be successful, success at one level promotes success at the next level, and schools control the conditions for success (Spady, 1988).

Lezotte (1991) identifies seven correlates of effective schooling: safe and orderly environment, climate of high expectations for success, instructional leadership, clear and focused mission, opportunity to learn and student time on task, frequent monitoring of student progress, and home-school relations.

Bloom (1984), Block, Efthim, and Burns (1989) and Guskey and Gates (1986) describe the process of mastery learning that assists students to learn in the time they need and encourages high performance.

The United States Office of Education (1987) produced 19 findings that supported the hypothesis that efforts related to instructional quality can enhance the instructional conditions in a school. Findings included and supported the use of cooperative learning, building on prior knowledge, teacher feedback regarding student learning, teacher expectations, and direct instruction.

Fraser, Walberg, Welch, and Hattie (1987) reported the results of many individual studies conducted during the past half century in numerous countries. The studies showed that improving the quality of instruction could result in vastly more effective and efficient academic learning for students. The

major findings supported the need to look seriously at inputs and processes that include reinforcement, cues and feedback, cooperative learning, and high teacher expectations.

The Northwest Regional Educational Laboratory (1990) identified excellent practices that positively affect achievement and affective outcomes. They included prioritized learning goals, activities matched to student developmental levels, monitoring of student progress, feedback, whole-group instruction, clear and focused instruction, beliefs that all students can learn, and high expectations for student learning.

Rogers and the Glendale OBI (Outcome-based Instruction) Team (1989) found that students in OBI classes averaged significantly above students in nonOBI classes on district criterion-referenced tests. Many students returning from college reported that they were better prepared (knew more going in) than most of the other students in their classes.

On a district attitudinal survey of students in OBI classes, most students reported that they preferred their OBI classes, learned more in OBI classes, believed that learning was easier in OBI classes, and wished more of their classes were using OBI.

Radwanski (1987) found that the most problematic subject for dropouts appears to be mathematics, followed by English. Records revealed that a significant number of academically successful students (C average or better) dropped out of school. Low marks and lagging credit accumulation are a strong predictor of dropping out.

[a] proportion of dropouts would have been able to meet program requirements with extensive special help in subject areas where they were experiencing difficulty, and a further proportion might have been able to cope academically in high school if they had arrived from elementary school better prepared. (pp. 80-81)

In the effort to synthesize the research, it became increasingly clear that our proposed OBE practices and a collaborative planning process would likely produce positive results. It was now time to review the literature related to indicator systems.

David (1987) reminded districts to match curricular goals and indicators, to ensure that indicators reflected the content and quality of instruction, and to go beyond aggregate measures such as test score averages. The basic criteria for developing an appropriate indicator systems model suggested by the Office of Educational Research and Improvement (OERI) Study Group (1988) were to measure the central features of schooling, measure what is being taught or considered important for students to know, provide information that is policy relevant, focus on the school site, allow for fair comparisons, and maximize usefulness and minimize the burden of the process.

The literature clearly suggests that the appropriate use of indicators within a collegial process could be a catalyst for school improvement efforts (Alkin, 1988; Bloom, 1984; David, 1987; Fraser et al., 1987; OERI, 1988). David (1987) suggests that data are more likely to be credible to school staffs if they have had the opportunity to suggest what should be measured and how it should be measured. The United States Office of Education (1987) indicates that the process of teachers sharing ideas, cooperating in activities, and assisting one

another's intellectual growth positively affect student achievement (p. 67). Fraser et al. (1987) found that the environmental variables that most affect student outcomes are cohesiveness, satisfaction, task difficulty, and goal direction. Oakes (1986) states that "unless research knowledge is supported by inquiry within schools, local school districts, and state education agencies themselves, little change is likely to occur" (p. 153).

Supported by research, we determined that a collegial process that incorporated the use of indicators was of paramount importance in our efforts to implement the OBE process.

The OBE Project

The OBE project was designed as a three-year action research project. During the first year the team identified and defined the desired exit outcomes all students should demonstrate and selected the measures to be used in the research process. In the second year, the planned instructional processes and selected measures were field tested. The instruments used included the repeated use of provincial achievement tests, attitude scales (Nyberg & Clarke, 1983), locally developed stakeholder surveys, teacher developed tests, and random interviews. Supportive measures used by teachers included checklists and student portfolios. Year three was the refinement year in which collaborative improvements were made based on the results of the field test.

What did future trends indicate students would need to demonstrate success in the 21st century? When these outcomes of significance or exit outcomes were defined, the team could *design down* to specific program outcomes. The exit outcomes provided a meaningful focus for organizing school and instructional practices.

A *clear focus* on exit outcomes meant that all instructional decisions were focused on the major learnings students were expected to demonstrate. This helped to ensure that program outcomes were not trivialized. Collaborative planning became a powerful vehicle to enhance the focus on the exit outcomes and to provide a rich resource base for teachers.

Teachers believed that their *high expectations* for all students had a major impact on student performance. Work needed to be done and done well to qualify for credit. Students were expected to demonstrate mastery by performing 80% or higher in the math outcomes in order to receive credit for the skill. Sometimes, a skill was seen as a "can do" skill, which did not receive a mark at all. A checklist was used instead and this implied a 100% mastery level. The reporting style changed in the OBE pilot process because averaging or summarizing a lot of learning did not adequately describe what a student could do. Student progress reports included a listing of the mathematics concepts the student had mastered and those that were in progress or yet to be mastered.

Teachers realized that learning opportunities for students were frequently limited by time or by the methods used in initial instruction. Teachers began to provide expanded opportunities, or more than one chance or way for students to learn a concept or skill. Ideally, students had the opportunity to participate in a variety of active learning experiences during the introduction of a concept. A reteaching process, when needed, provided another opportunity for learning. The reteaching process might include a peer tutoring or cooperative

learning opportunity. These additional opportunities to learn provided the time and support many students needed to demonstrate success. The issue of providing appropriate time for students to demonstrate their learning was magnified by the calendar system. Some students needed time beyond a defined semester or school calendar system. Similarly, some students who mastered concepts quickly needed the opportunity to continue their progress. Dealing with the issues of time and support for learning required collaborative and creative decision making.

Variables that were altered in some way in the OBE project included the following: Bell curve expectations to high expectations for all, "averaging" of learning to specific reporting based on outcomes, textbook emphasis to outcome emphasis, periodic feedback to continuous specific feedback, time-based opportunity to expanded opportunities to demonstrate outcomes and receive credit for learning, and individual planning to collegial planning for instructional delivery with a focus on significant outcomes.

Findings

Student Achievement

The findings indicate that many more students achieved mastery levels in mathematics classes following the implementation of the OBE principles. Teacher recorded marks indicated that 15% of the 1990 (PreOBE) Math 10 students were achieving 80% or higher in the course. Following the implementation of the OBE principles, 83% (1991) and 69% (1992) of the students were achieving 80% or higher in Math 10. In Math 13, 5% of the 1990 (Pre-OBE) students were achieving 80% or higher in the course. Following the implementation of the OBE principles, 81% (1991) and 74% (1992) of the students were achieving 80% or higher in Math 13.

Teachers believed that the implementation of the OBE principles made a significant difference in student performance. Some students, though, were still reluctant to accept responsibility for learning. Teachers saw students counting on several chances to demonstrate success and procrastinating in demonstrating the outcomes. The semestered system was an obvious constraint for some students. Reporting times were tedious for teachers, as students attempted to catch up on demonstrations of the outcomes. In 1992, 19 students from the Math 10 and 13 classes withdrew to attend the school's personalized learning center or Math 14 classes. Teachers felt these students exhibited behavior problems due to their lack of prerequisite skills or understanding of the concepts. Teachers reported that students did not drop out of school but made decisions to get the prerequisite skills through another course before registering for Math 10. The personalized learning center was an attempt to provide another learning opportunity for these students prior to their enrolling in Math 10.

A review of the first semester 1992-1993 grade 10 math results indicated that 80% of the total grade 10 students who had participated in two years of OBE instruction (grades 8 and 9 OBE Math) were performing at mastery levels in all math courses in the first term. Thirty-nine percent of the OBE students who registered for math courses in the first semester enrolled in Math 10. Of these 96% were performing at mastery levels. Forty-six percent of the students took Math 13; 85% of these students were performing at mastery levels. Four-

teen percent of the OBE students enrolled in nonOBE math courses (Math 14 and 16). Of these 25% were performing at the mastery levels in the first term report.

OBE students also demonstrated higher achievement on external measures, such as the provincial mathematics achievement tests for grades 3, 6, and 9. The repeated use of the measures revealed an increase in performance within programs.

In 1990, 98% of the OBE grade 3 students achieved the acceptable standard on the provincial mathematics achievement test. This performance was repeated in 1991. In 1992 all grade 3 OBE students were performing at the acceptable standard. It may be argued that the teachers were teaching to the test. Teachers valued the conditions of the provincial testing process, and the school and district attempted to maintain these conditions at all times. Teachers were dedicated to teaching the curriculum outcomes, and believed it was the dedication to the teaching of the outcomes, and the provision for time and opportunity to learn that caused these results to occur. In fact, in 1991 grade 3 students wrote the provincial science test and teachers indicated that they spent time preparing for that test. They were keen to see the results because they felt there was a great deal of overlap between science and mathematics in 1991, for example, graphing and practical applications. Teachers believed strongly that OBE transferred into other subject areas.

The grade 3 teachers shared the following comments when asked for their perceptions regarding the results:

Table 1
Percentage of Grade 3, 6 and 9 Students Achieving Standards* on the Total Provincial Achievement Tests

Achievement Test	N** OBE	Acceptable Standard			Standard of Excellence		
		OBE	District	Province	OBE	District	Province
Grade 3 Math							
1990	53	98.1	96.0	91.8	49.1	34.8	26.9
1991	47	97.7	—	—	69.8	—	—
1992	50	100.0	—	—	60.0	—	—
Grade 3 Science							
1991	47	97.8	84.1	78.9	28.9	23.7	16.6
Grade 6 Math							
1991	40	75.0	74.0	75.5	4.8	16.3	20.6
1992	47	79.0	—	—	32.0	—	—
Grade 9 Math							
1992	80	60.0	57.8	67.4	2.5	5.2	8.9

Source: Alberta Education Achievement Test Results

*85% of students are expected to achieve the acceptable standard or higher; 15% are expected to achieve the standard of excellence.

**Number of students writing the achievement tests:

Grade 3 (1990) district=253, province=33,349

Grade 6 (1991) district=123, province=31,930

Grade 9 (1992) district=232, province=27,888

We were directed to think critically about what the children needed to do easily and what we could do without. We took things that would be beneficial for student learning and did that *early* so the students would have the skills. Problem solving was taught early because it was a skill they had to have. We made them discuss and verbalize what should be done, e.g., process. They (students) made up their own problems for other kids to do! Subsequent new skills in regrouping were taught in the problem solving format. We had students drawing, using manipulatives, talking and sharing ideas with a partner. Students worked in groups of four. We tried to see who could come up with a way to solve the problem. We stressed the *process*, not the answer, thereby reinforcing the students' thought process.

In 1991 the grade 6 students performed slightly above their local peers in the mathematics achievement test. The 1992 grade 6 OBE results showed higher performances than the local and provincial results of 1991. The 1992 grade 9 OBE performance in mathematics was lower than the provincial average but slightly higher than the local results. In all cases where repeated tests were administered, results over time showed OBE students improving in performance at the standard of excellence compared with preOBE results.

Stakeholder Perceptions

Parent and student survey responses showed perceived gains in student achievement, responsibility, and attitudes as a result of the OBE process. Teacher responses indicated a perceived decrease in positive changes although interviews with teachers indicated that expectations for the demonstrations of all the significant outcomes were higher in 1992. Table 2 presents the results.

The most significant change in stakeholder perceptions appeared in the area of student responsibility as perceived by parents. Whether students feel better about themselves as a result of achievement or whether they need to feel good about themselves in order to achieve well has long been debated. The results appear to suggest a positive relationship between achievement and gains in the affective and behavioral domains.

The School Subjects Attitude Scales (Nyberg & Clarke, 1983) were administered annually over the three years. A review of the responses resulted in a suggestion that because the indicators did not vary significantly, interpretations should be made with caution. Given these cautions, the following obser-

Table 2
Percentage of Stakeholders Indicating Positive Changes in Student Outcomes

Student Outcomes	Students		Teachers		Parents	
	1991 (N=426)	1992 (N=492)	1991 (N=10)	1992 (N=10)	1991 (N=98)	1992 (N=52)
Achievement	93	93	100	80	82	91
Responsibility	89	93	100	80	83	95
Attitudes	86	89	100	80	81	90

Source: Stakeholder Surveys, Fort McMurray Catholic Schools

vations were made. Grade 5 and 6 OBE students appeared to like mathematics more following the implementation of OBE. They continued to think math is useful and showed some gains in believing that it is easy. Grade 5 and 6 district students did not show the same gains in the areas of usefulness or difficulty. Grades 7 to 10 OBE and district students appeared to think math is useful but difficult. Parental support for the OBE process was strong. The responses are provided in Table 3.

A significant increase in parental support occurred at the junior high levels. A decrease was evidenced at the grade 10 level. At a meeting with parents of grade 10 students, parents indicated they were supportive of the philosophy and principles of OBE but they believed the OBE "expanded opportunity to learn" principle was not appropriately addressed through a semester system. Collaborative discussions have continued in the attempt to deal with this constraint. Table 4 summarizes parent, student, and teacher comments received through a local survey regarding the OBE process.

Discussion

The findings imply that the OBE process provides a comprehensive framework for the delivery of a variety of effective instructional practices. The quantitative and qualitative data strongly suggest that the OBE process produces positive results in student achievement, responsibility, and attitudes in mathematics.

One of the limitations of our project was the absence of valid and reliable criterion-referenced mathematics measures for the various levels. Our project

Table 3
Percentage of Parents Indicating Support for OBE

	1991	1992
<i>Grades 2-6</i>	<i>(N=40)</i>	<i>(N=82)</i>
Very Positive Support	83	84
Moderately Supportive	10	13
Not Supportive	3	2
No Response	5	0
<i>Grades 7-9</i>	<i>(N=41)</i>	<i>(N=28)</i>
Very Positive Support	68	86
Moderately Supportive	24	7
Not Supportive	7	7
<i>Grade 10</i>	<i>(N=17)</i>	<i>(N=40)</i>
Very Positive Support	88	75
Moderately Supportive	6	8
Not Supportive	0	18
Not Applicable	6	0

Source: Stakeholder Surveys, Fort McMurray Catholic Schools

Note. Percentages may not total 100 due to rounding.

Total number of parents responding was 248. The response rate for 1991 was 15% and for 1992 it was 19%.

Table 4
Stakeholder Perceptions Regarding Outcome-Based Education

Stakeholder	Strengths	Weaknesses
Parents	high standards for achievement high expectations for students to work at it and perform well process builds self-esteem and confidence second chances are realistic promotes a solid understanding for math the clear reporting system teacher support for student success	students who move to nonOBE classes do not necessarily perform well in those classes even with having had time in the OBE process second chances are not realistic opportunity to “goof off” and not try hard the first time semester system goes too fast
Students Grades 3 to 6	OBE is less confusing and easier second chances help to improve math skills useful to get a job it provides a challenge it’s fun	it’s a bother, sports activities may be missed teachers expect too much the process continues even when students are not finished
Grades 7 to 9	more is learned and remembered allows students to learn from mistakes students feel they actually learn the concepts helps students become more responsible will provide opportunity to get a good job and be proud of self	students can get behind second chances are not realistic too many outcomes in a year
Grade 10	the process is easier and students are confident about passing better learning occurs increases understanding in math even after tests have been written less tension when you write a test OBE Math is no longer a difficult subject to grasp	students feel rushed but like the second chances it’s demanding 80% expectation is too high
Teachers	instructional clarity collaboration focus on quality diagnostic emphasis student confidence love of learning	how to improve student responsibility and higher level thinking skills the need to show students how math is used in the day-to-day world how to deal with the OBE principles within a semestered system

Source: Stakeholder Surveys, Fort McMurray Catholic Schools

might have benefited from the use of performance-based measures that could assess student performance of higher level thinking skills.

Teachers have identified the need for continued improvement of the process. The needs identified include greater integration of higher level thinking opportunities through instruction and assessments, and continuation of the design down process.

The OBE process in this project is generally considered a traditional or, minimally, a transitional OBE approach. That is to say, the zones of OBE are not yet fully focused on transformational outcomes, but rather focus on program outcomes and higher level processes within the programs. At the trans-

formational OBE stage, the focus is on student demonstrations in real-life performance contexts. The focus on transformational outcomes is currently developing in the district through a five-year strategic plan. Exit outcomes have been defined by administrators, teachers, business groups, parents and students. Stakeholders have also developed performance descriptors within each of the defined exit outcomes to define clearly what performance should look like in these outcomes. Local indicators and school improvement efforts will focus on these desired exit outcomes.

The district clearly believes that the OBE process has just begun and that a collaborative and collegial focus on the desired exit outcomes provides a clear and focused vision for the district.

Conclusions

Teaching teams may implement the OBE process in slightly different ways but the question all teams should ask are:

1. Are students learning what we believe is important for their success now and in the future?
2. What evidence do we expect and accept that students are demonstrating success in the outcomes of significance?
3. Based on our understanding of results, what can we do to improve the instructional conditions so students learn and progress continuously?

The beliefs and principles of OBE have provided the foundation for our collaborative improvement process over the last three years. The qualitative and quantitative indicators suggest that the OBE process, implemented within a collaborative environment, produces positive changes in student achievement, responsibility, and attitudes. We believe that many of our students will be better able to cope academically in high school because they have arrived from elementary school better prepared. We also believe the OBE process will prepare our students for success after they leave our schools because they have demonstrated success in the outcomes of significance.

Alberta Education has modeled the collaborative improvement process through the Educational Quality Indicators initiative. We believe the province's collaborative focus on outcomes and indicators is a positive one. The use of varied indicators provides a rich source of information that teachers and administrators can use to make more informed decisions regarding educational improvement.

References

- Alkin, M.C. (1988). National quality indicators: A world view. *Studies in Educational Evaluation*, 14, 11-24.
- Block, J.H., Efthim, H.E., & Burns, R.B. (1989). *Building effective mastery learning schools*. New York: Longman.
- Bloom, B. (1984). The search for methods of group instruction as effective as one-to-one tutoring. *Educational Leadership*, 4(8), 4-17.
- David, J.L. (1987). *Improving education with locally developed indicators*. New Brunswick, NJ: RAND Corporation.
- Fraser, B.J., Walberg, H.J., Welch, W.W., & Hattie, J.A. (1987). Syntheses of educational productivity research. *International Journal of Educational Research*, 11, 145-252.
- Guskey, T.R., & Gates, S.L. (1986). Synthesis of research on the effects of mastery learning in elementary and secondary classrooms. *Educational Leadership*, 33, 73-80.
- Lezotte, L. (1991). *Correlates of effective schools: The first and second generation*, Okemos, MI: Effective Schools Products.

- Northwest Regional Educational Laboratory. (1990). *Effective schooling practices: A research synthesis 1990 Update*. Portland, OR: Author.
- Nyberg, V.R., & Clarke, S.C.T. (1983). *Schools Subjects Attitude Scales*. Edmonton: Alberta Education.
- Oakes, J. (1986). Keeping track, part 2: Curriculum inequality and school reform. *Phi Delta Kappan*, 68, 148-154.
- Office of Educational Research and Improvement. (1988). *Creating responsible and responsive accountability systems*. Washington, DC: US Department of Education.
- Radwanski, G. (1987). *Ontario study of the relevance of education, and the issue of dropouts*. Toronto: Ontario Ministry of Education.
- Rogers, S., & the Glendale OBI Team. (1989). Outcome-based education operationalized in the classroom: The Glendale outcome-based instructional model. *Outcomes*, 8(1), 21-27.
- Rubin, S.E., & Spady, W.G. (1984). Achieving excellence through outcome-based instructional delivery. *Educational Leadership*, 4(8), 37-44.
- Spady, W.G. (1988). Organizing for results: The basis of authentic restructuring and reform. *Educational Leadership*, 46(2), 4-8.
- United States Office of Education. (1987). *What works: Research about teaching and learning* (2nd ed.). Washington, DC: Author.

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Educational Quality Indicators in Art and Mathematics

The Calgary EQI Project developed indicators of quality student performance for the assessment of school art composition and mathematical problem solving. Practicing teachers and school system specialists in art and mathematics developed and classroom-tested materials to identify and document quality indicators. The resulting qualitative materials describe a performance assessment process that celebrates diversity in student responses. The process depends on informed professional judgment, shared exemplars and vocabulary, and student involvement in self-assessment. Results indicate that performance assessment has positive effects on learning and teaching and that further explorations and applications of the project would be educationally significant.

Le projet Calgary EQI Project a développé des indicateurs de qualité de la performance étudiante pour l'évaluation de la composition des arts à l'école ainsi que de la résolution de problèmes en mathématiques. Des enseignant(e)s et des spécialistes en art et en mathématiques du système scolaire ont développé et ont testé en classe des documents pour identifier et documenter les indicateurs de qualité. Les matériaux qualitatifs qui en résultaient décrivent un processus d'évaluation de performance qui célèbre la diversité des réponses des élèves. Ce processus dépend d'un jugement professionnel informé, du partage, du vocabulaire et de la participation des élèves-mêmes à leur propre auto-évaluation. Les résultats indiquent que l'évaluation de la performance apporte des effets positifs sur l'apprentissage et l'enseignement et que d'autres explorations et applications du projet auraient une valeur éducative significative.

Introduction

The Calgary Educational Quality Indicators (EQI) Project was designed as action research beginning with the examination of expert practice, and continuing in response to the needs and discoveries that emerged from that examination. This section outlines the purposes of the project, the rationale, and the related literature.

Purposes

The purposes of the EQI Project were to:

- identify indicators of quality work that can be applied in the assessment of student achievement in areas of art and mathematics;
- identify conditions that appear to enhance or limit the achievement of quality;
- develop strategies for collecting quality student work including recorded interviews with teachers and students;

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- examine quality work using alternative assessment strategies to paper-and-pencil testing.

Rationale

Quality indicators are defined as observable characteristics of excellence established through consensus of professional judgment among practicing teachers. Assessment is gathering information or observable evidence of what a learner can do. Evaluation is making judgments based on interpreting assessment information.

Our school curricula contain goals and objectives that state that students will have knowledge, will exhibit positive attitudes, and will use knowledge they have gained in application to problems or concerns. These outcomes are demonstrated in a variety of forms. In assessment the outcome can be the product itself or the process the student went through to arrive at the product.

Most current reports about student achievement are in the form of results of paper-and-pencil tests in which a single correct answer is expected. Student performances that are creative or original are not recognized by traditional tests, yet are powerful indicators of student success. Creative expression and problem solving are demonstrated in performances that are difficult to capture in numbers, averages, and percentiles.

Art composition and mathematical problem solving were selected for the project because these areas represent generic communication and problem solving student outcomes. These areas also provide unique perspectives on the assessment of *product* and *process* outcomes. The focus of the EQI-Art project was on the *product* of the learning the art work created by the student although attention is also paid to the decisions made by students in creating the work. The EQI-Math project emphasized the *process* of student thinking in solving mathematical problems, placing less emphasis on the “correct” answer.

Student responses in art and in mathematics demonstrate tremendous variety in both products and processes. No two art works or problem solutions are alike, nor would we want them to be. Because of this variety, the use of specific standards, objective checklists, or simple marking schemes are not useful and may even be counterproductive to the learning goals. An essential element for assessment, however, is the learner’s thought. The intention of the artist must be revealed in order to assess whether the intended communication of the idea is successful. The strategies of the problem solver must be understood in order to assess problem solving capabilities. Student reflection and metacognition illuminate the student response in both subject areas.

Because of the complexity of art and mathematics assessments, the exercise of professional judgment becomes the key to appropriate assessment. This project aimed to provide models of the practice of assessment that lead to improved learning and teaching for both teachers and students.

Learning, Teaching, and Assessment

Student outcomes in art composition and mathematical problem solving represent particularly difficult challenges for assessment because of the diverse nature of the student responses and the expectation that the professional judgment of educators will be adequate to meet the assessment demands.

Higher order cognitive skills are demonstrated in art and mathematical responses. Strategic flexibility, adaptive control, and achievement motivation are demonstrated in problem solving (Murnane & Raizen, 1988; National Council of Teachers of Mathematics, 1989; Schoenfeld, 1989; Snow, 1989). A similar set of cognitive processes is suggested in the literature regarding the production of visual art (Glenn, 1989; Wolf, 1989a). Research reviews (Nickerson, 1989; Norris, 1989; Siegler, 1989) suggest positive directions for improving current testing methods and for developing new instruments and strategies that apply what is now being discovered about cognitive operations. Key ideas from the literature relating to learning, teaching, and assessment are discussed below.

Learning

Modern cognitive theory asserts that “people are not recorders of information but builders of knowledge structures” (Resnick & Klopfer, 1989, p. 4). Learning is a complex, meaning-making activity that can have many representations depending on the skills, experience, and environment of the learner. Visual art is the observable result of cognitive decision making, and the production of it combines perception, use of visual symbol systems, technical skill, cultural appreciation, and emotion (MacLeod, 1989).

Cognitive theorists and educators endeavor to understand what is happening in the mind of the learner. Norris (1989) is concerned that teachers are not taking the extra time to go beyond the student answer and to encourage critical thinking. He points out the usefulness of talking to test-takers, encouraging them to reflect and reason about their answers. Gardner (1991) encourages the development of expert understanding in learners, rather than settling for “correct-answer compromises” that may cover up a lack of significant understanding. Skemp (1989) is concerned with the difference between teaching for “instrumental understanding,” which expects that students have formulas or habits of thought, and teaching for “relational understanding,” which requires that students develop conceptual structures to guide thinking about mathematical concepts. He called on teachers to first understand concepts children hold, and then to help them build new, more appropriate schema.

Metacognition, or how students evaluate and control their own thinking, is expected to be systematically developed in schools (Romberg & Carpenter, 1986; Schoenfeld, 1989). Snow (1989) provided a model for research on assessment that includes these metacognitive processes and recommends assessment models that capture higher order cognitive skills and conative structures. Processes of metacognition engage the student in self-assessment and self-regulation.

Teaching

The teacher is the critical factor according to much of this research, which calls for the teacher to arrange learning environments and activities that “stimulate and nourish students’ own mental elaborations of knowledge and to help them grow in their capacity to monitor and guide their own learning and thinking” (Resnick & Klopfer, 1989, p. 5). In this view of learning, the exercise of teacher expertise becomes increasingly critical to student achievement.

Clark and Peterson (1986) describe the emergence of the view of the teacher as reflective practitioner. This view is consistent with the teacher as clinician and action researcher, which is evident in the work of Duckworth (1986), Goodlad (1986, 1987), Clandinin (1986), Calfee and Hiebert (1988), Costa (1984), Shavelson and Stern (1981), and Sirotnik and Clark (1988). Teacher thinking, as conceptualized in this body of research, is a central set of moderating contextual factors that influence curriculum effectiveness, school effectiveness, and student achievement.

If we wish to develop intelligent behavior as a significant outcome of education, instructional strategies purposefully intended to develop children's metacognitive abilities must be infused into our teaching methods, staff development and supervisory processes. (Costa, 1984, p. 58)

Assessment

The root word of assessment means to "sit with" a learner, paying close attention to the evidence of a learner's thoughtful understanding. The background from which a teacher can make appropriate assessments is rooted in that teacher's deep understanding and abilities to communicate that understanding to students. Eisner (1985, 1991) defines deep understanding as connoisseurship, the ability to perceive subtle qualities and nuances not available to most. The connoisseur must then use criticism, which is the art of saying useful things about complex and subtle objects and events so that others, less sophisticated or sophisticated in different ways, can see and understand what they did not see and understand before (1991, p. 3).

Resnick and Resnick (1985) discuss assessment and curriculum as the two key components that can be changed to effect school improvements. Wiggins (1989) agrees that assessment largely determines what teachers teach, and concurs that instead of trying to fight that tendency, educators should concentrate on developing effective tests that examine essential learnings. Performance assessment alternatives are suggested as a means to assess higher order thinking skills. These alternatives are encouraged in many subject areas and implemented through such vehicles as portfolios, extended performances, and displays.

Arts PROPEL is a project arising out of Harvard Project Zero that involves the Educational Testing Service, Pittsburgh Public Schools, and the Rockefeller Foundation (Gardner, 1989; Wolf, 1989b). The project supports the development of performance assessment instruments to document artistic learning from late elementary to high school in music, art, and expressive writing. Some of the main tenets include: teachers having deep knowledge in the subject areas; learning centered around meaningful, significant projects that may involve students for a significant period of time; assessment as crucial, but respectful of the intelligence being assessed. The term PROPEL is an acronym for the three competences to be assessed: production, perception, and reflection.

Promising approaches that link the assessment process with instructional processes and focus on the development of teacher skills and judgment are under way in mathematics and other subject areas around the world. Psychometric researchers (Nickerson, 1989; Snow, 1989) and educators involved directly in school change efforts (Gardner, 1989; NCTM, 1989; Stiggins,

1988; Wiggins, 1989) present a consistent emphasis on the development of teacher expertise in the process of improving assessment, in both external assessment developed by governing agencies and in teacher developed testing.

Education is a system of interactions rather than a linear process of cause-effect relationships. Instead of controlling for the influence of teaching to the test, or practice effects, Frederiksen and Collins (1989) encourage educators to take advantage of "systemic validity," the direct and expected connection between instruction and assessment. They identify the directness of cognitive assessment and the degree of subjectivity or judgment required as important characteristics for systemically valid tests. Direct assessment means that the cognitive skill that is of interest is directly evaluated as it is expressed in the performance of some extended task. This directness is the underlying tenet of performance assessment (Stiggins, 1987, 1988), authentic assessment (Calfee & Hiebert, 1988; California Assessment Program, 1990; Wiggins, 1989), and portfolio usage (California Assessment Program, 1989, 1990; Wolf, 1989b).

The degree of subjectivity refers to the degree to which judgment, analysis, and reflection are used in assigning a score to a test performance. Frederiksen and Collins (1989) recommend subjective assessment for student performances and the implementation of collaborative systems for marking and moderating student work. The materials for subjective assessment that communicate to teachers and to students the critical traits to look for in examining their own or another's work are a central component of the testing procedures of the Assessment of Performance Unit in Britain (1989), the California Assessment Program (1990), and the Benchmarks Program in Toronto (Toronto Board of Education, 1989).

A "systems approach" to assessment such as that described by Frederiksen and Collins (1989) accommodates the demands of assessment in art and problem solving in mathematics. First, the systems model views learning as a complex meaning-making activity that has many representations, depending on the skills, experience, and environment of the learner. Second, assessment is facilitated by a teacher whose professional judgment is essential to completing the task. Third, assessment is focused on the actual behaviors that demonstrate the accomplishment of the learning objective. Such behaviors are often the extended response to a challenge or problem.

Project Design

The Calgary EQI Project involved two of Alberta's largest school jurisdictions in collaborative research with Alberta Education. More than 60 professional educators in the two school systems have been researchers, advisors, and pilot testers. The art and mathematics components of the projects EQI-Art and EQI-Math operated with independently established objectives and timelines. Similarity in the design and approach was provided through the work of a common project manager.

Design

The design incorporated three phases: development, field testing, and pilot testing, which corresponded to the three years of project funding. The developmental phase included the review of the literature, establishment of com-

mittees, and preparation of initial structures for indicators of quality student achievement. Committees of teachers and subject specialists reviewed student work, identified characteristics of quality work, considered alternative approaches for recording assessment information, and proposed activities and materials for use in classrooms.

In the field testing phase, project personnel tried out a variety of materials and approaches in classrooms. Promising approaches were pursued and evidence of the results of field tests was collected. This evidence was used to revise the materials and to structure plans for pilot testing.

Pilot tests were carried out by teachers who had no previous experience with the EQI project. The pilot teachers tried out the assessment materials during their regular teaching practice and during specifically designed classroom activities. Project advisors provided inservice prior to piloting and support to pilot teachers during the pilot period.

Structure

Art and mathematics subject specialists provided advice, support and direction for the project. These specialists were the advisors to the project as well as participants in project activities. Classroom teachers, selected by subject specialists for their expert classroom practice and professional commitment, provided the developmental work, the testing of materials in classrooms, and thoughtful reflections and evaluations.

A team of teachers worked with the project for the first two years. Because much of their work was action research into their own practice, they were called *teacher researchers*. Teachers whose primary role was to try out specific materials and practices in their classrooms are called *field test teachers* and *pilot test teachers*. For every project task, the project teachers represented both the selected grade levels of the study and the two school jurisdictions.

Senior superintendents and education officials served on project steering committees that provided coordination between the two school jurisdictions and Alberta Education and provided direction to the project manager. An advisory committee provided a communications link to other educational stakeholders. Members of the advisory committee included university professors in art and mathematics, leaders in the art and mathematics communities, parent representatives, teachers' association representatives, and members of the business community.

EQI-Art Project

Student outcomes in response to the depiction and composition objectives of the Alberta Education art curriculum were observed in the art produced by students. However, there are currently no assessment devices available that are based on commonly understood expert standards regarding the quality of student artwork. The EQI-Art project was designed to fill this void by developing quality indicators that assist both teachers and students in their respective tasks of teaching and learning. Table 1 summarizes the project personnel, tasks, and results from 1989 to 1992.

Development

EQI-Art teacher researchers and specialists reviewed class sets of student art and used various methods to describe the observable characteristics of quality

Table 1
EQI-Art Project Outline

	Phase 1: 1989-1990 <i>Development</i>	Phase 2: 1990-1991 <i>Field Testing</i>	Phase 3: 1991-1992 <i>Pilot Testing</i>
<i>Personnel</i>	school system art specialists (4) teacher researchers (7)	school system art specialists (4) teacher researchers (7)	school system mathematics specialists (5) pilot teachers (8)
<i>Tasks</i>	categorized student art "above average," "average" and "below average" developed formats for assessing art: checklists, questions and narrative critique	removed categories of student art art assessment to focus on "what is of quality in this work" described 3 quality indicators in narrative format: relationships handling meaning field tested handbooks, collected recommendations	prepared draft handbook to include all grades inserviced pilot teachers added teacher and student journals used handbook in classrooms for 4 months specialists visited all pilot teachers 2 or more times
<i>Results</i>	prepared 4 prototype "Quality Indicators Handbooks" 2 or 3 sample lessons for grades 2, 5, 8 and 11 lesson included teacher expectations, classroom conditions student voice/intention added beside artwork developed criteria for 3 characteristics: relationships of elements and principles of design handling of the media meaning or intention identified 5 categories of art: directed observations narrative works responses to works of art special communications of the self design problems	4 handbooks: for grades 2, 5 junior and senior high recommended a SINGLE handbook all grades included inservice and additional suggestions for use of handbok requested more examination of "thoughtfulness" encouraged	use of journals a key element for most pilot situations model of assessment practice well received by teachers, students, parents and others expansion of single handbook: extensive introduction, more ideas for use of journals, reflective practices handbook edited and printed

in the work. Student work was sorted into below average, average, or above average groupings for analysis.

The teacher researchers and specialists developed comprehensive lists of what could be observed in student art of different kinds and of different qualities. Questions were prepared to guide the observations. Teachers tried out these materials in their classrooms and found them of limited value: they were too constraining, and required a lot of expertise to use. However, teacher researchers found the discourse regarding each piece of art useful, and proposed the development of a prototype of expert assessment practice based on narrative critique.

The prototype demonstrated how an art expert would observe and comment on student work. Teacher researchers described an art lesson, selected student art, and prepared written critiques to accompany each one. They decided that student explanations were necessary to understand what the student intended to communicate in the work, so a student statement accompanied each sample. From this prototype, the teacher researchers and advisors developed Quality Indicators Art Handbooks for grade 2, grade 5, junior high and senior high. The handbooks contained introductory remarks about quality indicators, and samples of art from two or three lessons.

Field Testing

In preparing the handbooks for field testing, teacher researchers and advisors included only samples of art that demonstrated quality, and removed evaluative comments such as "average." The factors informing this decision were a concern that the presentation in published form of "poor examples" would detract from the emphasis on quality, a difficulty in copyright clearance when presenting student work in a negative light, and a belief that teachers would gradually build up a positive repertoire of quality indicators they could readily notice, thereby eliminating the need for negative examples.

The format of the handbooks invited users to become involved in the process of seeing with expert eyes and to model the same process in their own assessment practice. Eight teachers from the two Calgary boards field tested the Quality Indicators Art Handbooks in their classrooms during February and March 1991.

During field testing, information was collected on teacher attitudes and skills, uses made of the handbooks, recommended revisions, and suggestions for inservicing pilot teachers for the next year. Field test teachers were positive and enthusiastic about the handbooks, noting that students seemed to focus on their lessons more seriously and take more pride in their work. Comments and recommendations provided by the field test teachers were used to add some insights to the art critiques included and to reformat materials for easier classroom use. Field test teachers requested that all grade levels be included in a single handbook so that they could illustrate a development of art practice and performance throughout the grades.

Pilot Testing

The EQI-Art project advisors revised the initial handbooks by increasing the number of art samples and by including all grade levels in one edition. In order to increase the awareness of student thinking and to capture teacher

reflections on art assessment, the art advisors incorporated into the pilot plans reflective journals for both teachers and students.

From September 1991 until January 1992, eight teachers from the two school boards piloted the revised handbooks in their classrooms. Inservice sessions provided pilot teachers with some background about the EQI-Art project and materials and with practice for reflective writing. The art advisors visited all pilot classrooms at least once. Pilot teachers provided feedback to the advisors on these occasions and at the final pilot meeting.

Observations

In their feedback, pilot teachers often referred to the value of talk, language, and vocabulary as important aspects of focusing student attention on the art problem, getting students to articulate their knowledge about art, and sharing understandings of quality in art. Another main theme was appreciation of the opportunity to hear what colleagues had to say about art assessment. Many teachers wanted an extension of the pilot meetings and expanded versions of the handbook. These thoughts are reflected in the following pilot teacher comments:

I think the most positive aspect of the project was having the students write down their thoughts and intentions about their work. It focused their ideas, concerns and observations about their work.

[The EQI] program provides concrete examples of how to talk about specific pieces of art. Teachers may be familiar with terms such as pattern, unity, etc., but not know how to use these in discussion. By simply reading what other teachers have written about children's art, it makes it easier to incorporate these ideas into classroom practice.

Pilot teachers reported that they planned to use journal writing in future classes, that they had changed their views about art, that they needed to listen more to student intentions, and that they learned new ways to talk to parents about student progress in art.

[I] discovered how much students enjoy viewing other students' work. In fact, that is when it is easiest to gain and maintain class attention. They loved hearing the artist's intentions.

I credit art with being a higher level cognitive activity than before. As children wrote about their work they identified what must have been going through their minds subconsciously and brought it to a conscious level.

I found that because of my involvement with EQI my way of teaching has changed: it has also carried over to other subject areas as I have discussed and worked with my class on ways to produce "quality" work. They and I both look at what they are doing differently: what makes this quality work? what are they happy with, and why? what might they like to work more on? and what was difficult for them?

The pilot teachers provided many recommendations for future developments, for inservice, for other ways to use the book in classes, and for using journals as an integral part of assessment.

Inservice of some form is essential to use the book as a resource.

It is really important that teachers and students have the time and opportunity to reflect on their work. The use of journals is an important aspect of this. It is just as important that teachers and students be given the opportunity to dialogue with each other and their peers EQI certainly heightens one's awareness of the possibilities of art education and how to more accurately and fairly assess student work.

The art advisors considered the information collected from all sources in preparing the following conclusions about the EQI-Art project.

- Quality assessment practice supports improved art making;
- Attending to written and/or spoken student responses (reflections, thoughts about) illuminates the art work;
- Quality art assessment is a shared experience between teachers and students;
- Effective art assessment depends on common vocabulary shared by teachers and students;
- The collection of quality art exemplars emphasizes diversity as an attribute of a quality art program;
- Expert professional judgment benefits from collegial work.
- Quality assessment takes time.
- EQI handbook exemplars are a way to share expertise, to develop connoisseurship.

EQI-Math Project

In recent changes to Alberta mathematics curricula, the most important goal of instruction became the development of students' abilities to solve problems. Problem solving includes the acquisition of specific skills and processes as well as the development of positive attitudes toward and the use of mathematical reasoning in many different life situations. These expectations have been accompanied by some changes in teaching methods in schools and intense interest in developing new methods for assessment. Table 2 summarizes the activities of the EQI-Math project from 1989 to 1992.

Development

Experienced mathematics teachers identify successful problem solvers by their dispositions or personal characteristics, in addition to their possession of particular math skills and success in solving math problems. The EQI-Math teacher researchers identified characteristics that described student 10 dispositions for students in elementary and secondary schools. As defined by the National Council for Teachers of Mathematics (1989),

Disposition refers not simply to attitudes but to a tendency to think and act in positive ways. Students' mathematical dispositions are manifested in the ways they approach tasks—whether with confidence, willingness to explore alternatives, perseverance, and interest—and in their tendency to reflect on their own thinking. (p. 233)

Teacher researchers developed a bank of problems for students in grades 2, 5, 8, and 10. A format was selected for each grade, including a prompt for students to show all their work, a response structure, and some statement of affect from the student (How did you feel ... ?). The teacher researchers examined sets of problem responses and selected a holistic scoring structure,

Table 2
EQI-Math Project Outline

	Phase 1: 1989-1990 <i>Development</i>	Phase 2: 1990-1991 <i>Field Testing</i>	Phase 3: 1991-1992 <i>Pilot Testing</i>
<i>Personnel</i>	school system mathematics specialists (5) teacher researchers (14)	school system mathematics specialists (5) teacher researchers (14)	school system mathematics specialists (5) pilot teachers (8)
<i>Tasks</i>	problem solving dispositions identified through anecdotal records of problem solvers problem bank developed problem format and student attitude questions chosen holistic scoring studied	10 problem solving dispositions tracked open-ended anecdotal records kept 8 problems administered: choice of time for response and group work 2 scorings for each problem student attitude responses collected different for all grades classroom environment described by teachers	5 problem solving dispositions tracked structured anecdotal records kept 6 problems administered: choice of time for response and group work 2 scorings for each problem student attitude responses collected same for all grades classroom environment described by specialists
<i>Results</i>	10 dispositions for all grades: confidence, perseverance, risk taking, understanding, achievement orientation, motivation, communication, creativity, organization, and reflection holistic scoring: “A” inadequate “B” adequate “C” competent	10 dispositions too unwieldy: analysis helped develop 5: motivated creative confident strategic approach strategic process problems reworded problem formats reviewed: rewording/ removal of grids for answer formats new holistic scoring developed: preliminary partial complete elegant	dispositions gave important, useful information problem scoring positive, effective, quite consistent anecdotal records still problematic student attitude responses not useful environmental scan questioned

representing each problem solution as either "A," inadequate, "B," adequate, or "C," competent.

Field Testing

In year two, teacher researchers provided classroom observations of the 10 student dispositions and used anecdotal record sheets to record student behaviors. The teacher researchers field-tested problems with their mathematics classes. The results of field testing led to some changes: rewording problems to communicate more clearly to students; removing response boxes that were seen to inhibit student responses; and providing folded 11in. by 17in. sheets for student responses.

Consultants with the provincial EQI project recommended that the holistic scoring categories reflect levels of elaborated thought from very minimal or simple, to highly elaborated, abstract conceptions. EQI-Math advisors designed a new scale with four categories: preliminary, partial, complete, and elegant. The EQI-Math advisors decided to include two questions about student affect on all student response sheets in the pilot test:

The word I would use to describe this problem is:

Boring _____ Challenging _____ Confusing _____ Fun _____

After trying to solve this problem I feel:

Discouraged _____ Satisfied _____ Frustrated _____ Happy _____

Teacher researchers described their classroom mathematics environment at each problem administration by responding to the statement: "Describe what is happening in your math classroom."

Pilot Testing

EQI-Math advisors revised the EQI materials and procedures: factor analysis carried out on the disposition checklist data assisted in reducing the number of dispositions from 10 to 5; descriptors were altered and refined; the number of observations required of teachers was reduced to two; and anecdotal record forms and procedures were modified.

The EQI-Math materials were piloted in eight classrooms from September to December 1991. Pilot teachers attended two days of inservice that covered all the aspects of the pilot process, from the philosophy of problem solving to filling out the necessary project forms.

Pilot teachers recorded student problem solving dispositions at the beginning and at the end of the pilot period. They administered six problems to their classes and each student response was scored twice. Four university graduate students, who were coached in flexible interviewing techniques, recorded both video and audiotapes of students during each problem solving session. Pilot teachers documented observations of three students during each pilot problem assignment.

Observations

Prior to the pilot and at its conclusion, the pilot teachers were asked to respond in writing to questions about their beliefs and practices. The two sets of responses were examined for changes in individual teacher comments over time. The EQI-Math advisors found that problem solving beliefs did not seem to change significantly between the two surveys. An explanation for this may

be that teachers selected for piloting were already strong teachers with firmly held beliefs about learning and teaching. The short period of piloting would also limit perceived changes. However, the pilot teachers reported some changes in their practices and some plans for change in the future. Some of their comments follow.

The project has made me do more problem solving lessons. It also helped me track students differently. It gave me more definite ways to categorize what I saw.

[I will] be more conscious of the process rather than the end product. Give students plenty of problems at the beginning of the year and not mark them ... no risk involved.

I now mark holistically because it gives a clearer picture of the strategies students are using, and I also have a better idea about which students would benefit from interviews.

Math pilot teachers responded in writing to the question: Are your students better problem solvers as a result of your participation in the EQI-Math pilot? The responses show that students are seen to be better problem solvers to some degree in every pilot classroom. Pilot teachers commented that student problem solving had improved as a result of more risk-taking, working in groups, encouragement to try different ways, increased discussion, and generally a more positive attitude.

The encouragement of multiple solutions and creative responses allows children to be individuals, and respects their choices.

[There is] a strong component of talk and the need to explain, clarify, work through ... such that students developed confidence to use their "voice."

I believe they are better now because I'm looking at them through a new pair of eyes: his project has shown me a few new things about how students attack problems. Thus I can now better address the problems they may have and I think I can better appreciate why some are having difficulties ... hopefully, this will help us all to become better problem solvers!

The pilot teachers responded to the various aspects of the EQI-Math pilot the holistic scoring, disposition identification, anecdotal records, student attitude reports, and conditions that encourage quality problem solving. Key ideas from these discussions follow.

Holistic scoring was well received by all teachers, although secondary teachers were concerned with becoming more precise and expanding the descriptors. In general, the focus on the process over product, the lack of a discouraging mark, and the sharing of expectations about a good solution were seen as positive features.

Disposition identification was positively received by most of the teachers because it "focused the observations" and provided a tool and vocabulary for reporting. At the junior high school level, there was concern that making a judgment about dispositions from observation was sheer guesswork, and that there was great variety in students from one problem to the next.

Anecdotal records were criticized by all pilot teachers as "frustrating," "time-consuming," "inaccurate," or "interfering with the teaching process." A

few positive comments related to the use of anecdotal information in student interviews. Student affect reports were criticized by pilot teachers at all grade levels. In the early grades, teachers felt that the students didn't really understand the words. In the senior grades, there was concern about the vocabulary used, and whether students took the response seriously.

Conditions that encourage quality problem solving were similar for all grade levels. Teachers identified time, the opportunity to work in small groups, the free discussion of ideas without judgment, a facilitating teacher, resources in the classroom, and good problems as important conditions.

During the pilot, the EQI-Math advisory committee visited all pilot classrooms at least once, and prepared an "Environmental Scan" regarding the classroom conditions. Math advisors were not comfortable with using one or two limited observations to indicate a classroom environment, so this information was not used in the project findings.

The EQI-Math advisors reviewed the results of the project and made the following conclusions.

- Teachers reported positive changes to their teaching and assessment practices as a result of participating in EQI-Math.
- Teachers want to meet together to discuss teaching and assessment. The experience of working closely with colleagues was very positively received.
- Some of the materials and practices developed in the project were seen to be useful. Student dispositions were helpful in guiding the observation of students and in developing understandings about student thinking. Holistic scoring was helpful in two ways: teachers looked beyond the answer to the processes used by students, and observation and reflection by teachers and students were encouraged. Looking at many student solutions helped both teachers and students to understand and to communicate the diversity of responses and to determine the "look" of quality problem solutions.
- Some of the materials and practices developed in the project were not seen to be useful. Anecdotal records were very time-consuming and inconsistent for use in large-scale problem solving assessments, and student attitude reports were of limited value to teachers.
- Students seemed to be more positive about problem solving, took more risks, and demonstrated more confidence as a result of the EQI project.
- Systematic methods for observing students closely, for example, the disposition sheets and holistic scoring help teachers with teaching decisions and with assessment and evaluation tasks.
- Students respond to the invitation to express themselves more fully and to think about their thinking.

Discussion

Action research begins without an end product in mind. The Calgary EQI Project began in just that open-ended way. Along the way, we struggled with choosing from a variety of alternatives, we answered many questions about assessment practice, and we proposed other questions that remain to be answered. In this discussion, we consider the conclusions we reached, the processes that encouraged our work, the products we produced, and future developments.

Conclusions

Art and mathematics appear to represent different assessment challenges, and we did not expect to find many commonalities in teacher practice. However, the making of art and the solving of mathematical problems require complex thinking processes, and the assessment of either requires competent professional judgment. The expression and development of that judgment is the common focus of the conclusions.

Findings that are common to both EQI-Art and EQI-Math follow.

- Quality assessment models in art and mathematics support teacher decision-making about teaching and assessment.
- Attending to written and/or spoken student reflections illuminates the art work or the problem solution.
- Quality assessment is a shared experience between teachers and students, encouraged by shared exemplars and common vocabulary.
- Qualitative assessment takes time because students must complete a complex assignment and teachers must observe and respond.
- Exemplars in art and mathematics performance assessment are a way to share expertise and to develop connoisseurship. A collection of quality exemplars in subject areas helps develop high and common expectations for student outcomes and celebrates diversity on student responses.

Professional judgment is the critical component in the qualitative assessment of complex student outcomes in art and mathematics. We used the informed professional judgment of expert teachers and subject specialists to develop this project. The materials and approaches that have resulted model the practice of assessment for other teachers and for students.

Processes Promoting Success

The involvement of classroom teachers in all phases contributed to the strength and validity of the project. Teachers contributed expert judgment, thoughtful reflections about teaching and learning, and precise criticism regarding materials and methods. Teachers showed how much they want to work with colleagues on issues of assessment, and they reported receiving professional benefits and personal satisfaction from collegial work in this project.

The involvement and commitment of two large school boards provided a wealth of background not only in subject expertise but also in other areas of learning, teaching and assessment.

The development of new assessment materials requires time: to discuss, develop, experiment, rethink, assess, evaluate, and to begin again with new ideas that emerge. We were provided with support for three years and made promising advances. To continue this developmental process requires that more time be dedicated in the future.

Response to the Project Products

Teachers and students have responded positively to the materials and approaches developed in EQI-Art and EQI-Math. There is some evidence that positive changes occurred in learning and teaching as a result of the use of EQI materials.

Presentations regarding the EQI Project have been well received. Teacher and administrator groups want copies of the Art Handbook and mathematics materials to work with in their development of assessment measures. Business people support the focus on significant outcomes and quality work. Parents comment on how the exemplars help them understand expectations. University personnel want to share these approaches with teachers in training.

Future Directions

The implementation of new assessment processes into evaluation and reporting practices has not been addressed by this project. This implementation would be a natural extension of the project. Many educators are attempting to implement new assessment techniques through the use of portfolios, performances and extended student projects. The materials from EQI Calgary provide some foundational understandings and methods that would give these new forms of assessment increased validity.

The EQI-Math teacher researchers and pilot teachers reported that discussing student responses with other teachers was an important benefit of participation in this project. Math advisors are coordinating the development of a *Problem Solving Profiles* book to provide teachers with shared examples and guided discussion from the EQI-Math project.

The conclusions from this project suggest that the processes used for developing new approaches to assessment in art and mathematics may be valuable for other subject areas as well. Examination of such an expansion should be considered at senior levels in the school systems and in Alberta Education.

Learning theory provides us with the view of the learner as an active meaning-maker, constantly making decisions and adapting new experiences in the making of new knowledge. Corresponding to this view of the learner, assessment procedures must assist in illuminating the learner outcomes, must celebrate and encourage diversity of outcomes, and must help both teachers and learners share in the assessment process. The EQI-Art and EQI-Math projects contribute to assessment procedures that fit these requirements.

References

- Assessment of Performance Unit, Science Project. (1989). *Selected bibliography of APU publications, 1985-1989*. London: APU Science, Centre for Educational Studies, Kings College.
- Calfee, R.C., & Hiebert, E. (1988). Assessment in the service of learning. In E.E. Freeman (Ed.), *Proceedings of the 1987 ETS Invitational Conference* (pp. 45-61). Princeton, NJ: Educational Testing Service.
- California Assessment Program. (1989). *A question of thinking: A first look at student's performance on open-ended questions in mathematics*. Sacramento, CA: California State Department of Education.
- California Assessment Program. (1990). *Assessing authentic achievement* [videotape]. Sacramento, CA: California State Department of Education.
- Clandinin, D.J. (1986). *Classroom practice: Teacher images in action*. Philadelphia, PA: Falmer.
- Clark, C.M., & Peterson, P.L. (1986). Teachers' thought processes. In M.C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 225-296). New York: Macmillan.
- Costa A.L. (1984). Mediating the metacognitive. *Educational Leadership*, 42(3), 57-62.
- Duckworth, E. (1986). Teaching as research. *Harvard Educational Review*, 56(4), 481-495.
- Eisner, E.W. (1985). *The art of educational evaluation: A personal view*. Philadelphia, PA: Falmer.
- Eisner, E.W. (1991). *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. Philadelphia: Macmillan.

- Frederiksen, J.R., & Collins, A. (1989). A systems approach to educational testing. *Educational Researcher*, 18(9), 27-32.
- Gardner, H. (1989). Zero-based art education: An introduction to Arts-PROPEL. *Studies in Art Education*, 30(2), 71-83.
- Gardner, H. (1991). *The unschooled mind: How children think and how schools should teach*. New York: Basic.
- Glenn, J. III. (1989, September). Arts-PROPEL. *Cambridge Arts Council Newsletter*, pp. 1- 2.
- Goodlad, J.I. (1986). The learner at the world's centre. *Social Education*, 50, 424-436.
- Goodlad, J.I. (1987). Structure, process, and an agenda. In J.I. Goodlad (Ed.), *The ecology of school renewal* (chap. 1). Chicago, IL: National Society of the Study of Education.
- MacLeod, J. (1989, October). Image, insight and invention: Education through art. *Canadian Society for Education through Art Journal*, 4-8.
- Murnane, R.J., & Raizen, S.A. (Eds.). (1988). *Improving indicators of the quality of science and mathematics education in grades K-12*. Washington, DC: National Academy Press.
- National Council of Teachers of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics*. Reston, VA: NCTM.
- Nickerson, R.S. (1989). New directions in educational assessment. *Educational Researcher*, 18(9), 3-7.
- Norris, S.P. (1989). Can we test validly for critical thinking? *Educational Researcher*, 18(9), 21-26.
- Resnick, D.P., & Resnick L.B. (1985). Standards, curriculum, and performance: A historical and comparative perspective. *Educational Researcher*, 14(3), 5-20.
- Resnick, L.B. & Klopfer, L.E. (1989). Toward the thinking curriculum: An overview. In L.B. Resnick & L.E. Klopfer (Eds.), *Toward the thinking curriculum: Current cognitive research* (pp. 1-18). Alexandria, VA: Association for Supervision and Curriculum Development.
- Romberg, T.A., & Carpenter, T.P. (1986). Research on teaching and learning mathematics: Two disciplines of scientific inquiry. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 850-871). New York: Macmillan.
- Schoenfeld, A.H. (1989). Teaching mathematical thinking and problem solving. In L.B. Resnick & L.E. Klopfer (Eds.), *Toward the thinking curriculum: Current cognitive research* (pp. 83-103). Alexandria, VA: Association for Supervision and Curriculum Development.
- Shavelson, R.J., & Stern, P. (1981). Research on teacher's pedagogical thoughts, judgments, decisions, and behavior. *Review of Educational Research*, 51, 445-498.
- Siegler, R.S. (1989). Strategy, diversity and cognitive assessment. *Educational Researcher*, 18(9), 15-20.
- Sirotnik, K.A., & Clark, R.W. (1988). School-centered decision making and renewal. *Phi Delta Kappan*, 69, 660-664.
- Skemp, R.R. (1989). *Mathematics in the primary school*. London: Routledge.
- Snow, R.E. (1989). Toward assessment of cognitive and conative structures in learning. *Educational Researcher*, 18(9), 8-14.
- Stiggins, R.J. (1987). Design and development of performance assessments. *Instructional Topics in Educational Measurement, Module #1*. Washington, DC: National Council on Measurement in Education.
- Stiggins, R.J. (1988). Revitalizing classroom assessment: The highest instructional priority. *Phi Delta Kappan*, 69, 363-368.
- Toronto Board of Education. (1989). *Benchmarks: Standards of student achievement* [video tapes, program materials]. Toronto: Author.
- Wiggins, G. (1989). A true test: Toward more authentic and equitable assessment. *Phi Delta Kappan*, 70(9), 703-713.
- Wolf, D. (1989a). Opening up assessment. *Educational Leadership*, 45(4), 24-29.
- Wolf, D. (1989b, December 13). When the phone rings. *Portfolio: The newsletter of Arts-PROPEL*.

Inge Ellefson

Brooks School District No. 2092

Academic Outcomes and Behavior

The purpose of the Brooks EQI Project was to study the validity of the premise that quality education in Brooks is perceived to be the result of the "right" blend of attention to academic success and attention to the development of "character" within the framework of a firm, but supportive set of behavioral expectations and policies. Perceptions from staff, administrators, trustees and students, and student academic, social, and behavioral data were collected to provide indicators of character development among students in the district. Responsible student behavior included high expectations; mutual respect and recognition; pride in self, others, home, school, and community; courteous, supportive caring and sharing attributes; and mutual trust and open communication. A baseline was established for homework completion, vandalism, counseling/discipline, student perceptions, achievement, participation, and Rutherford scholarships. An action plan involved the community that produced a set of belief statements, and follow-up plans.

Le but du projet Brooks EQI Project était d'étudier la validité, du principe que la qualité de l'éducation à Brooks était perçue comme étant le résultat d'un mélange "correct" de l'attention au succès académique et de l'attention au développement du "caractère" dans le cadre d'attentes de comportements strictes qui appuyent les politiques du district. Les impressions des corps professoraux, des administrateurs, des commissaires, et des élèves ainsi que des données se rapportant à l'aspect comportement, social et académique de l'élève furent rassemblés afin de fournir des indicateurs de développement de la personnalité parmi les élèves du district. Un comportement d'élèves responsables comporte: des attentes élevées; le respect mutuel et la reconnaissance; la fierté en soi, en autrui, envers la famille, envers l'école et en communauté; la politesse; un appui attentif et la capacité de partager; la confiance mutuelle et la communication ouverte. Une ligne de base a été établie pour déterminer l'achèvement des devoirs à la maison, le vandalisme, le counseling et la discipline, les perceptions des élèves, le succès, la participation ainsi que l'obtention de bourses Rutherford. Un plan d'action qui comprenait des membres de la communauté a produit une série d'énoncés de foi et des plans d'action.

Context

The Brooks School District is located in the town of Brooks in southeastern Alberta and has a population of 9,500. The town is surrounded by 257,000 acres of irrigated farmland and over a million acres of rangeland used for livestock grazing. The lands surrounding Brooks support an active oil industry. The district's six schools are located within an eight-block radius in the town. The community is stable and there is much pride in the school district. In September 1991 there were 2,372 students, 127 teachers, and 46 support staff.

Inge Ellefson was the Quality Indicators Director in Brooks for the three years of Alberta's Educational Quality Indicators Initiative. She currently holds her former position as principal of the Brooks Primary School and includes student academic achievement and responsible behavior as action research interests.

Purposes

The purposes of the Brooks Educational Quality Indicators (EQI) Project were:

1. to study the validity of the premise that quality education in Brooks is perceived to be the result of the "right" blend of attention to academic success and attention to development of "character" within the framework of a firm, but supportive set of behavioral expectations and policies; and
2. as an outcome of addressing the premise we expect to define a valid set of quality indicators.

The expected long-term results are:

- higher satisfaction and confidence among students, graduates, and employees with respect to the educational product as measured by staff questionnaires, administrator interviews, student homework completion rate, vandalism rate, discipline rate, former student survey, and telephone interviews;
- a lower dropout rate;
- maintenance of high academic achievement test results, diploma exam results, participation rates, and Rutherford scholarships;
- wider acceptance of the quality indicators developed by stakeholders in Brooks.

Related Literature

Rutter, Maughan, Mortimer, and Ouston (1979) suggest that outcome measures include delinquency figures and teacher ratings of children's behavior, and used the children's behavior in school, attendance, examination success, employment, and delinquency. Process information included data gathering in the schools, including interviews with the staff, a pupil questionnaire and observations.

Hanson and Ginsburg (1985) were interested in examining how the students' value systems, and those of their parents and peers, affect their achievement in school and their behavior outside school when family background characteristics are taken into account. They found that traditional American values are important predictors of student success; in fact, they are twice as important for student performance as family socioeconomic background, and students with strong traditional values are more likely to use their out-of-school time in ways that reinforce learning, for example, high school students with more traditional values spend about three more hours a week on homework than do students with less traditional values.

Wayson (Carter, 1987) defines discipline as

the ability to identify the character of a circumstance or situation to determine one's most constructive role in it, to carry out that role directly, to sustain it as long as necessary, and to learn from the consequences of one's actions. Such skill is learned; it is taught best by people who are willing to demonstrate it in their own lives. (p. 8)

"How do we want our classroom to be?" is the question that the Child Development Project (CDP) would have children ask (Kohn, 1991). Rejecting punishment and rewards in favor of strategies geared toward internalization of prosocial norms and values, the CDP invites teachers and students to work together to turn their classrooms into caring communities. The primary com-

ponents of the program intended to bring this about are: a version of cooperative learning that does not rely on grades or other extrinsic motivators; the use of a literature-based reading program that stimulates discussion about values and offers examples of empathy and caring even as it develops verbal skills; an approach to classroom management where the emphasis is on developing intrinsic motives to participate productively and prosocially, where teachers are encouraged to develop warm relationships with the children, and where periodic class meetings are held so that children can play an active role in planning, assessing progress, and solving problems; and a variety of other features, including pairing of children of different ages to work together, setting up community service projects to develop responsibility, giving periodic homework assignments specifically designed to be done (and to foster communication) with parents, and holding schoolwide activities that may involve whole families (pp. 496-506).

The literature suggests that the right blend of attention to academic success and development of character depends on the student and circumstance. What is important are the values taught at school as well as in the home. It is clear that both ingredients must exist in order for quality education to occur. The Brooks EQI project concentrated on desirable student behavior and outcomes on a school district basis.

Design

The project spanned three years. The first stage of the project, 1989-1990, identified a set of quality indicators. Interviews were conducted with administrators and trustees, and teachers provided their perceptions in writing. These perceptions formed the basis for a questionnaire that was completed by the school district personnel. Information from these sources was used to identify the quality indicators.

The second stage of the project, 1990-1991, involved collecting data in the following areas: a survey by former students; information on counseling/discipline; homework completion rates; and interviews on a small sample of former students who had been expelled or had received a Rutherford scholarship. Data were subsequently collected on school vandalism. Achievement test results were analyzed for students in grades 3, 6, 9, and diploma exam results from grade 12. An action plan was devised with administrators to address the information collected.

The third stage of the project, 1991-1992, implemented the action plan. The community was involved in completing a profile and developing a set of beliefs and a tentative action plan to follow up on perceived needs.

Indicators of Responsible Student Behavior

The Brooks School District chose to study outcomes of student behavior in terms of homework completion and lack of vandalism. We also collected student opinion on standards of conduct in our schools and data on counseling students. We have a supportive school board that collaborates with administrators to promote positive student behavior.

Indicators of responsible student behavior included high expectations; mutual respect and recognition; pride in self, others, home, school, and com-

munity; courteous, supportive caring and sharing attributes; and mutual trust and open communication.

High expectations. The staff and trustees of the Brooks School District believe that adults must have high expectations of student behavior. Students must internalize the expectations and in turn demonstrate self-discipline. In order to promote self-discipline, adults must consistently help children to see themselves acting responsibly rather than constantly having to enforce positive behaviors. All Brooks staff and trustees indicated a commitment to developing responsible behavior.

Mutual respect and recognition. Encouragement to celebrate positive and responsible behavior is provided through counseling and coaching. Respect for the rights of others and a sense of tolerance and understanding are promoted. Adults, especially teachers, model mutual respect and recognition.

Pride in self, others, home, school, and community. The personal appearance of staff and students as well as the physical appearance of school buildings show a sense of pride. The teachers actively teach pride through, for example, the care of desks. Pride is encouraged through the celebration of student accomplishments, such as honor roll recognition, scholarships, and so forth.

Courteous, supportive caring and sharing attributes. Visitors comment on the friendliness and courtesy shown to them by students. Cooperative learning encourages responsible student behavior in the classroom. Integration of special needs students is encouraged.

Mutual trust and open communication. Students take appropriate risks and speak their mind, joke with adults, question policies, and so forth. Schools trust students to live up to expectations. Trust and open communication are modeled by teachers and administrators. There is a positive climate in the Brooks School District.

Findings

In the first stage of the project, data collection included staff perceptions, a district questionnaire, and interviews with administrators. This resulted in a model of responsible student behavior. During the second stage, data collection expanded to include eight areas: homework completion, vandalism, counseling/discipline, former student survey, telephone interviews, achievement test and diploma exam results, participation rates, and Rutherford scholarships. The results follow.

Homework Completion. In the fall of 1990, students from grades 4 to 12 were surveyed to determine the amount of homework completed in the Brooks School District on a Homework Completion Rate form. The data were collected by teachers over a two-week period. Homework was defined as "any student work (other than studying or reading) that requires time to complete at home" The rate of return by the elementary teachers was 100%, overall rate of return was 70.6%. Teachers of subject areas without homework such as band and industrial arts were not involved in the task. Homework completion rates for the five participating schools varied from 78.4% to 91.1%. The overall homework completion rate was 84.9%.

Vandalism. Vandalism rates were collected from September 1990 to December 1990. Vandalism was defined as any action that results in maintenance

being involved in cleanup/repair, for example, broken window, graffiti, and so forth. No vandalism was recorded during that four-month period.

Counseling/Discipline. In the fall of 1990, administrators collected information regarding counseling/discipline in the Brooks School District. The objective was to attempt to determine the number of students disciplined by an administrator and the effect of the disciplinary action. Discipline was defined as any administrator contact with students at teacher request. The schools each chose a two-week period in which to collect the nature of the problem, action taken, time involved, and if possible, results of the action.

In total 103 students were dealt with during the two-week period: 36 cases related to attendance, 14 to safety, 13 work habits, 18 attitude, 14 fighting, 3 profanity, 4 smoking and 1 drinking related problem. Action was taken in 100 cases: 28 follow-up (included detention, student contract, loss of privileges, work packages, and in-school suspension), 47 parent contacts, 5 agency contacts, 18 school district contacts (including suspensions) and 2 school board contacts (including expulsions). Thirty-three cases were elementary and 64 were secondary students (6 were unidentified as they were from a school having both elementary and secondary students).

Former Student Survey. In 1991, former students were sent a 40-item questionnaire asking their opinions about their schooling in the Brooks School District. The questions were organized into 12 categories: student behavior, discipline/attendance, homework, school cleanliness, satisfaction, student problems, extracurricular activities, teacher/administrator, fairness/recognition, individual attention, parent involvement, and school involvement. Using a 4-point scale, respondents were asked to indicate agreement or disagreement with the statements. The Former Student Survey was sent to 749 former students; 175 (23%) responded. Almost half (49%) of the respondents had spent their entire educational career in Brooks, whereas 25% had spent high school only. The students who indicated postsecondary school plans included: a majority (71%) planned to attend technical school, college, or university, 23% planned to work, 2% planned to attend another high school and 1% planned to return to Brooks Composite High School to graduate. The respondents reported that 17% received an advanced diploma with excellence, 42% received an advanced diploma, 35% received a general diploma, whereas 5% chose not to complete high school.

Results indicated that students agreed most that: they learned to solve their own problems; teachers were willing to give students individual help outside of class time; the school(s) maintained a satisfactory appearance; the students were expected to behave in an acceptable manner; students knew what was expected of them in school; and there was general satisfaction with the school(s), their teachers, and the education received from the Brooks School District. Students disagreed the most with the following, thereby indicating that students do not respect the property of others; other students do not have the ability to understand their problems; students do not receive satisfactory recognition for responsible behavior (e.g., telling the truth, keeping notebooks and locker clean, playing well with others, etc.); there is not enough emphasis placed on the social development of students; there is not enough help to students to make the transition out of grade 12; there is dissatisfaction with the

school's guidance and counseling services, the job of helping students understand their moral and ethical responsibilities, recognition for extracurricular accomplishments; and additional time should not be spent on homework and home study per school night.

Student Interviews. Telephone interviews were conducted with students who had left school at least three years ago. Students chosen for interviews were either Rutherford scholarship students or students who had been expelled. The purpose of the interview was to determine former students' perceptions about student behavior in the Brooks schools. Thirty phone calls were attempted to expelled students. Many of the students had changed residences, were not available or did not call back as requested. Three requests were refused and three interviews were completed. Thirteen calls were attempted to scholarship recipients. Many of the students were at university. No requests were refused and four interviews were completed.

Of the seven student interviews, two students questioned school board policies on attendance and required student behavior. Two students felt that the policies had an effect on student behavior. All the students felt that policies had some effect on all students. Many felt that the home had a stronger influence than school district policies. Students indicated that parents supported the school policies in all cases of recipients of Rutherford scholarships and one expelled student case. Five of the students were planning to attend college or university and two respondents were working.

Achievement. Table 1 presents 1989-1990 achievement test results in grades 3, 6 and 9 and diploma exam results (final blended mark) in grade 12 for Brooks and the province. The Brooks results were at or above provincial results in terms of students' achieving the acceptable standard, that is, 50% or higher in all subjects except grade 12 Mathematics 30 and Physics 30. This is

Table 1
Percentage of Students Achieving Acceptable Standards and Participating in
the Provincial Achievement Tests and Diploma Exams, 1990

Grade	Test	Acceptable Achievement		Participation	
		District	Province	District	Province
Grade 3	Mathematics	97.7	91.8	94.0	88.3
Grade 6	Science	85.6	82.5	94.4	86.6
Grade 9	Language Arts	82.9	82.9	80.7	90.7
Grade 12	English 30	95.0	95.0	64.2	57.3
	English 33	95.3	92.1	26.6	21.5
	Social Studies 30	92.6	89.7	61.7	48.0
	Mathematics 30	83.5	84.7	54.5	47.9
	Biology 30	96.9	86.5	62.3	47.1
	Chemistry 30	91.8	87.4	47.4	37.3
	Physics 30	84.1	89.9	28.6	19.9

Note. Grade 12 results (final blended mark and participation) are from January and June 1990. Grade 12 participation rates are based on the total number of students writing in January and June 1990, divided by the September 30, 1989 enrollment.
Source: Alberta Education

partially due to the large number of grade 12 students writing the exams. Note the participation rates.

Participation. Table 1 also presents the percentage of students who completed provincial achievement tests and diploma exams. The grade 3, 6, and 9 participation rates are documented by Alberta Education. The participation rate for the diploma exams was based on the number of students who wrote the test compared with the September 30, 1989 enrollment. Brooks' participation in these tests was higher than overall provincial participation in all subjects tested except grade 9 language arts.

Rutherford Scholarship. The number of 1989-1990 Brooks' grade 12 students receiving a portion or total scholarship was 27; 15 students received the total scholarship for all three years. This scholarship is awarded to students who achieve an average of 80% or higher on designated subjects in grades 10, 11, and 12 and who pursue postsecondary education. The maximum value is \$1,500.

The results provide a baseline for the Brooks School District for further research.

As future issues consume the time and efforts of educators, it is important to have information readily available that shows stakeholders and taxpayers how we are doing.

Implementation

In the second stage administrators considered what might best be done about the information collected from the related literature and personal perceptions, and what plans could be made to improve the district. Important outcomes for administrators were increased awareness of what exists in Brooks; a vision of expected student behaviors in the Brooks School District; ideas, issues, and problems that administrators face on a day-to-day basis, that is, what are the obstacles or impediments to attaining the goal regarding student behavior; and new ideas about how student discipline could be handled on a school-wide discipline basis, and an action plan.

In the third stage the action plan included involving the community in establishing reasonable expectations of children of different ages with respect to conduct and values at home and at school. A series of meetings was organized in 1992 in order to collect information and establish standards to involve others in the identification of what constitutes good behavior and what steps might be taken to promote good behavior. The purpose for these meetings was to review and reestablish a shared vision among schools, homes, and community with respect to developing prosocial attitudes and behaviors among our youth. Our goal was to jointly develop a set of beliefs for our community.

The process for involving the community included setting up a steering committee consisting of the superintendent, three school administrators, and the quality indicators director. This committee clarified the purpose of the meetings and fine-tuned the process. It was agreed that a series of three meetings with the community would help assess the support and interest that exist regarding the promotion of prosocial skills in our youth. It was also agreed that there would be a field-test meeting with identified School Advisory Council participants to first validate the process to be used.

The meetings with the community established a set of beliefs as well as a set of statements of personal commitment. These formed the basis for potential community use and reaffirmed the support for school district efforts in terms of promoting prosocial skills.

Discussion

Action research is challenging. The process in which members of the district became involved was one of the most important outcomes of the project. It was an opportunity to reflect and study an area of interest to participating educators and particularly administrators.

Staff and administrators in the Brooks School District believe that students behave responsibly. This was shown in the indicators that were identified: mutual respect and recognition; pride in self and others, home, school, and community; courteous, supportive caring and sharing attributes; mutual trust and open communication; and high expectations.

Our original premise was that we have quality education in Brooks as a result of the right blend of attention to success and development of character within the framework of a firm but supportive set of behavioral expectations and policies. Stakeholders agreed on the indicators of responsible student behavior. In determining whether we have quality education in Brooks, we collected data from a variety of sources. Initial agreement is essential as to exactly which sources constitute the identification of quality education.

At this time, we have baseline information in a number of areas; however, what we have yet to accomplish is to identify how the information we collected relates to the indicators. For example, how does the amount of homework completed relate to the indicator responsible student behavior? It is recommended that further research be carried out in these areas. The homework completion rate was relatively simple to collect and should be continued. However, the quality of the homework should be assessed as well as the rate of completion. Vandalism could be broadened to include minor types of vandalism in the schools. For example, there may be stakeholder interest in collecting information on broken windows. The counseling/discipline rate should be collected intermittently over a period of time rather than for a designated two-week period. It is also important that the personnel documenting the information standardize the format among the schools. Administrators should field-test the instrument and assess the information to check for standardization. The Former Student Survey should be sent to a random sample of students rather than all the students, and a revised format should be sent to only those who have graduated within the past year. Student interviews should be conducted by a person from outside the district. It was important to take an overview of our student achievement test and diploma exam results for the district as well as the participation rates and Rutherford scholarships.

The community meetings were the most important aspect of the EQI project in that they gave all Brooks administrators the opportunity to interact with our community in order to share beliefs and discuss our present concerns regarding responsible student behavior.

Conclusions

The Brooks EQI Project was valuable to the district in that the process was useful in providing the staff and administrators with the opportunity for introspection. The interviews with administrators and trustees were highly successful and highly recommended, as were the perceptions requested from the teachers. Data collection that occurred in the first stage for the identification of an indicators model could be easily transferable to any school district.

The indicators identified were used to develop supporting data sources. Data sources recommended for use by other school districts include the Former Student Survey, the homework completion rate and the counseling/discipline rate. Data for the discipline rate should be collected intermittently rather than for a two-week period. It is recommended that telephone interviews be handled by a person outside the district. Vandalism data are easy to keep over time. The provincial achievement test and diploma exam results are also easy to monitor over time in order to establish how the students are progressing in the district.

The project provided the administrators with the opportunity to interact with the community and discuss what each considered important regarding responsible student behavior. This was the most important outcome for the district. Administrators were given a clear mandate by the community in their efforts to promote responsible student behavior. The process reaffirmed that we are in tune with our community in our beliefs, and there is congruence between the school and the community.

References

- Carter, M. (1987). *A model for effective school discipline*. Bloomington, IN: Phi Delta Kappa Fastback #250.
- Hanson, S.L., & Ginsburg, A. (1985). *Gaining ground: Values and high school success*. Washington, DC: Decision Resources Corporation.
- Kohn, A. (1991). Caring kids—The role of the schools. *Phi Delta Kappan*, 72, 496-506.
- Rutter, M., Maughan, B., Mortimer, P., & Ouston, J. (1979). *Fifteen thousand hours: Secondary schools and their effects on children*. London: Open Books.

Leigh Anne Willard

Fort McMurray School District No. 2833

Identifying and Measuring Desirable Student Social Outcomes

This article outlines one school jurisdiction's efforts to develop a set of social skills, behaviors, attitude indicators, and standards that can be used to assess the quality of a selected portion of that jurisdiction's educational program and delivery. It describes the development of an expanded systems model of social competence, the use of standardized instruments, and finally the development of a three-level approach to measuring social skills development.

Cet article présente les efforts d'un district scolaire pour développer une série d'habiletés sociales et de comportements sociaux, des indicateurs d'attitude, et des moyens qui permettraient d'évaluer la qualité d'une section particulière du programme éducatif de cette même commission scolaire. On décrit le développement d'un modèle épanoui de compétence sociale, d'utilisation d'instruments standardisés, et finalement, le développement d'une méthode à trois niveaux pour mesurer le développement des habiletés sociales.

Introduction

Background

As the scope of the school's responsibilities broadens in our society, so has the demand for accountability in areas not previously measured by school systems. Schools are expected to influence students' social knowledge, skill levels, and attitudinal outcomes and to report on these skills in a report card format. The school system's mandate has become one of producing socially competent citizens. Ironically, we have few instruments that can accurately and practically measure social skills acquisition or competence. A review of the literature concerning social skills competence reveals a lack of cohesiveness and consistency in the field.

In 1989 the Fort McMurray Public School District No. 2833, initially under the direction of David Young and under the auspices of the provincial Educational Quality Indicators Initiative, embarked on a project that would not only identify quality indicators of social skills, but would also allow teachers specific subjective instruments that would help them to confirm the evaluation of children's social skills when reporting to parents. In addition, the project became a cornerstone of the District Student Expectations and Discipline Policy. The indicators and standards identified through the project also became a key component of the District's audit process. Consequently, it provided a measure of how well we were meeting that part of the mission statement that states: To ensure that students develop positive attitudes to

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learning, toward themselves and others; and that they develop into productive citizens.

Purposes of the Study

In order for the study to meet the purposes as outlined above, the following tasks were completed:

1. to identify or develop a set of desirable student social skills;
2. to identify or develop measurable outcomes and standards for the desirable student social skills;
3. to establish a methodology for collecting, analyzing and interpreting the data;
4. to identify or develop strategies for teaching the identified desirable student social skills;
5. to identify or develop a means of reporting information and findings to users.

A Model of Social Competence

Social skills are a factor of human behavior hard to define and measure. A model helps to conceptualize and understand the relationship among the parts. The Fort McMurray Public's EQI Project used a systems perspective based on a modified CIPP model (Worthen & Sanders, 1987) as a conceptual framework. The systems perspective was used as the basic organizational framework for the project because it "was compatible with the beliefs of the study team and appeared to provide good information for program development and student evaluation related to social competence" (Young, 1990, p. 2).

Certain commonalities are shared among the theories and models of social skills and social competence.

1. There are specific elements and skills.
2. There is a need for the elements/skills to be processed in an appropriate manner; the processes may be either cognitive or affective.
3. The appropriateness of behaviors to specific situations is crucial.
4. There is no agreed upon generic social skills listing. Also, any list needs to be flexible to some extent to the needs of the user.
5. Appropriate social responses are affected by the developmental level of the respondent, and the audience for the respondent.
6. Social responsibility can be learned.
7. The whole social competencies construct is dynamic, synergistic, and organic.
8. Specific social elements and skills are comprised of specific and discrete verbal and nonverbal behaviors and entail both effective and appropriate initiations and responses.
9. The skills are interactive by nature.
10. Deficits and excesses in social response can be specified and targeted for intervention.
11. Instructors attempting to teach social skills or appropriate social responses should adhere to the "relevance of behavior rule" (Allyon & Azrin, 1968) that states that instructors should teach only those behaviors that will continue to be naturally reinforced after training. Adopting this viewpoint assists in ensuring that social skills selected for instruction will have some intrinsic value to the child, some benefits for the child, and be valued by others who would likely reward their occurrence. (Young, 1990, p. 4)

The systems model of social competence (Fort McMurray, 1993, p. 124) was a compilation of a number of research-based ideas about the process (Hargie & McCartan, 1986; Perry & Perry 1987) and the factors (Reschly & Gresham, 1981) that influence an individual's social interaction skills. The social outcomes that were deemed desirable were those outlined in the 1988 *Alberta School Act* (Province of Alberta, 1988, Section 7, p. 11) and in the *Guide to Education* (Alberta Education, 1989). Figure 1 presents the model.

Measuring Social Skills

In a comprehensive review of the literature regarding the assessment of social competence, it was clear that no single approach emerged as the best method for social skills assessment in all social contexts. Therefore, there was a need for the development of a comprehensive assessment strategy that would be valid, reliable, and practical. In addition, any assessment strategy would also need to be based on multiple information sources and assessment methods suitable to a variety of developmental levels, audiences, and situations. Finally, the strategy would need to focus on the identified social inputs, processes, and outcomes.

Instrument Selection

In the second year of the project, a search for suitable assessment instruments began. Two instruments that appeared to have some strong possibilities for assessing student perceptions were the Self-Perception Profile for Children (Harter, 1985) and the Self-Perception Profile for Adolescents (Harter, 1988). These instruments appeared to fit the noted selection criteria. In addition, in conversation with the author, it was determined that new subscales could be developed or that some of the existing subscales could be dropped. In other words, the profiles were open to developmental work to match more closely the conception for the study.

Another instrument that appeared to have some strong possibilities was the Teacher Rating of Social Skills Children (TROSS-C) developed by Clarke, Gresham and Elliott (1985). The TROSS-C uses a checklist format and would be suitable for observations concerning actual behavior. The TROSS-C was revised by Gresham and Elliott (1990) on the basis of further development work, and was renamed the Social Skills Rating System (SSRS). The same basic characteristics of the TROSS-C were retained but refined. The selected instruments are cross-referenced to the desired outcomes in Table 1.

Field Test

The Self-Perception Profile for Children (SSP-C), the Self-Perception Profile for Adolescents (SSP-A), and the Social Skills Rating System (SSRS) were field-tested in November 1990. Field testing was deferred until November to permit teachers to get to know their students well enough to administer the scales. The major purposes of the field test were to confirm the quality of the data received and the ease and practicality of administration. The appropriate SSRS was administered to a grade 3 class and to a grade 11 (semestered) class. The SPP-C was administered to a grade 6 class and the SPP-A to a grade 11 (semestered) class. Teachers were given a brief overview of the purpose of the study and the instruments and were asked to complete one form for each

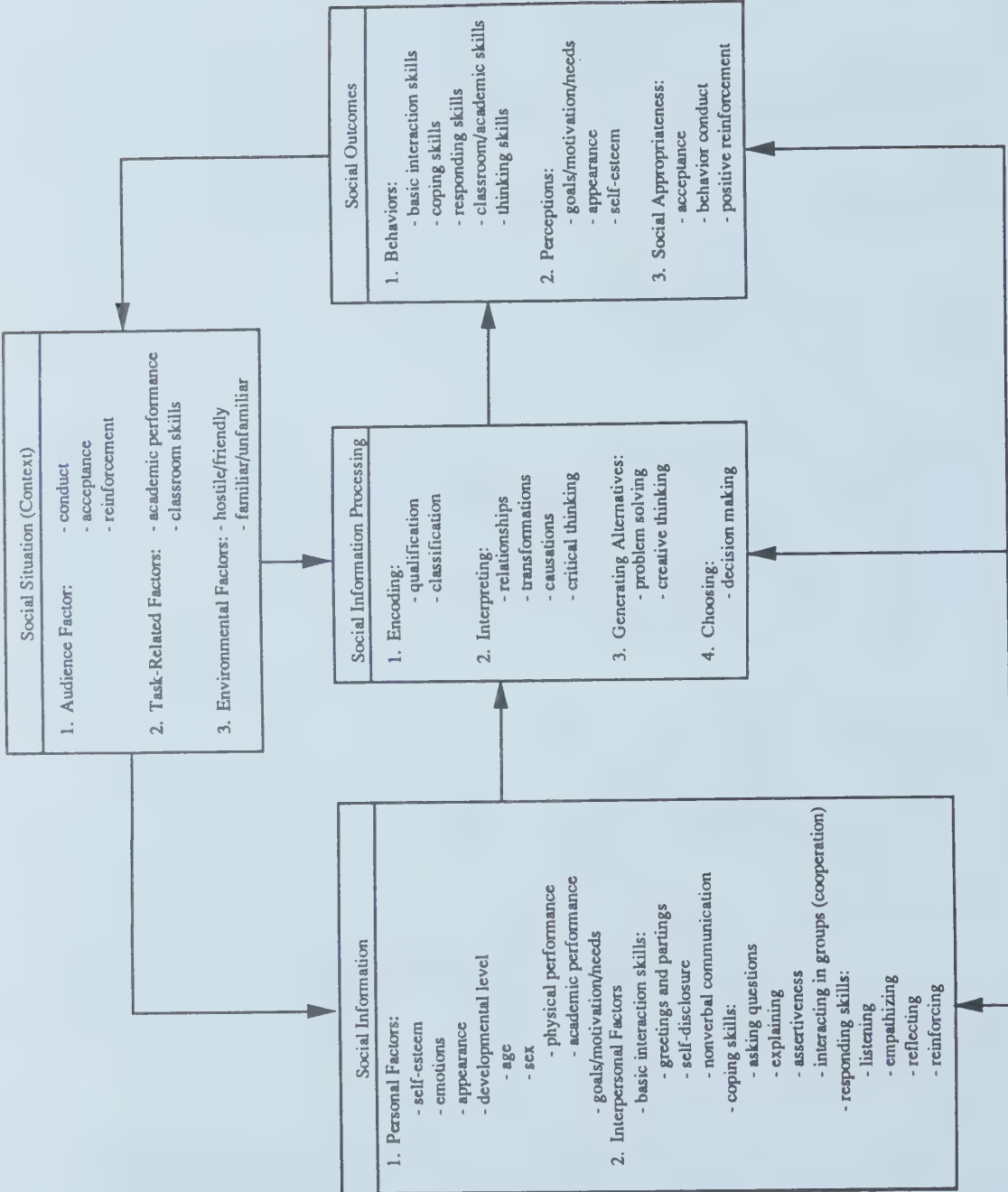


Figure 1. A systems model of social competence.

Table 1
Cross-Referencing Social Outcomes and Assessment Instruments

<i>Desirable Social Outcomes</i> ¹	<i>Instruments</i>
1. Behaviors	
1.1 basic interaction skills	1.1 SSRS ² (Social Initiation)
1.2 coping skills	1.2 TROSS-C ³ (Academic Performance, Peer Reinforcement, Cooperation);
1.3 responding skills	1.3 TROSS-C (Peer Reinforcement, Academic Performance)
1.4 classroom/academic skills	1.4 TROSS-C (Academic Performance)
2. Perceptions	
2.1 goals/motivation/needs	2.1 SPP ⁴ (for Adolescents—Job Competence, Romantic Appeal, Friendship)
2.2 appearance	2.2 SPP ⁵ (Physical Appearance)
2.3 self-esteem	2.3 SPP (Self-Esteem)
3. Social Appropriateness	
3.1 acceptance	3.1 SPP (Social Acceptance)
3.2 behavior conduct	3.2 SPP (Behavior Conduct)
3.3 positive reinforcement	3.3 SPP (Peer Reinforcement)

¹Appropriate desirable social outcomes at various developmental levels and as outlined in the *Alberta School Act* (1988) and the *Guide to Education* (1989).
²*Social Skills Rating System* (Gresham & Elliott, 1990).
³*Teacher Rating of Social Skills Children* (Clarke, Gresham & Elliott, 1985).
⁴Self-Perception Profile for Adolescents (Harter, 1988).
⁵Self-Perception Profile for Children (Harter, 1985) and Self-Perception Profile for Adolescents (Harter, 1988).

student, have the student complete one, and have the parent complete one. A composite profile was then compiled for each student. One follow-up call was made to parents who had not returned the forms.

Two problems were identified in using both instruments: training of teachers and ease of administration. First, without a fairly comprehensive training session, teachers felt uncomfortable with administering, analyzing, and interpreting results, and with responding to parental suspicion and antagonisms. Nevertheless, they also could see value in obtaining the information defined in the instruments. Second, administration of the instruments was deemed to be difficult because of the amount of time involved by each teacher in assessing each child, analyzing, and ensuring that parents returned their child's assessment. The latter issue was a major problem. Parental returns were low, with some outright refusals by parents to complete the form. The administration of the forms in high school in November, in a semestered school, was deemed to be too early for teachers to make knowledgeable judgments regarding their students. In summary, without fairly extensive/intensive training for teachers and some streamlining of administrative procedures, the instruments were not deemed to be practical for whole-class administration unless done by a qualified counselor or a similarly trained person. Even with training, the tests appeared to be too cumbersome to be practical for use with whole classes,

CLASSROOM BEHAVIORS		Rarely	Occasionally	About Half Time	Often	Almost Always
1.	Initiates interaction with teacher when appropriate.			△		○ □
2.	Can work independently.					○ △ □
3.	Perseveres in activities for an appropriate length of time.					○ △ □
4.	Contributes to discussions.				△ □	○
5.	Follows classroom procedures.				□	△ ○
6.	Does homework on time.				○ △ □	
7.	Is careful of possessions and property.				○ △ □	
8.	Listens to the teacher when directions are being given.				□	△ ○
9.	Completes tasks.					○ △ □
10.	Uses time efficiently.			△ □		○
TOTALS:		__ X 1 =	__ X 2 =	__ X 3 =	__ X 4 =	__ X 5 =

All rater responses for individual students were color-coded and placed on one Composite Profile Sheet. The Composite Profile is meant to identify areas of agreement between raters. Areas of strength and concern were easily identified and could then be used for developing IPPs for the individual.

Responses By:

△
Teacher

□
Peer

○
Student

Figure 2. Sample portion of the composite student profile.

although use with a small, select group seemed feasible. Solutions arose through discussion with the teachers. It was suggested that a simple social competence checklist be developed for use by teachers. It was agreed that the commercial tests would be more appropriately used by trained counselors when dealing with students about whom more detailed information was required.

A Three-level Approach to Measuring Social Skills

From the field test of the instruments and subsequent discussions, a three-level approach to measurement evolved, focusing primarily on issues of practicality, administration, and quality of information. The latter referred to the original instrument selection criteria. The steering committee began to develop a checklist that would help teachers and parents more easily identify children's level of social skills. The checklist was based on the same desirable social outcomes to which the standardized instruments had been cross-refer-

enced earlier (Table 1). It attempted to measure those skills that would result in desirable student social outcomes. The checklist became the Social Skills Diagnostic Screen.

In addition, district report cards were undergoing a detailed review. The portion of the report cards where teachers comment on children's social skill development was revised to reflect a more detailed and research-based assessment.

Use of standardized instruments became the last step in the three-part measurement system. The three-level model is more feasible in terms of time to administer and in ease of interpretation by classroom teachers. The approach for measuring student social development was to proceed from a general to a more specific level, depending on the needs of the student, parent, or teacher.

Level One

Each teacher reported to parents at report card time the social development of their children. Each teacher rated students as being well developed, developing appropriately, or needing further development. The ratings were based on:

- personal factors indicative of how a child feels about himself or herself;
- interpersonal factors relate to the child's ability to interact with others;
- social reasoning skills relate to the child's ability to think through a problem and to find a reasonable solution;
- classroom behaviors relate to the child's ability to meet classroom expectations and abide by rules.

Level Two

If any of the students, parents, or teachers required a more detailed assessment, the district's Social Skills Diagnostic Screen would be completed by the teacher for use in providing a rating for the report card, forming the basis for discussion with parents and/or the student, or for developing a moderate program of remedial action. In addition, a form could be completed by the student, the parents, and a peer and collated on a Composite Student Profile Form (Figure 2) to be used as the basis for discussion.

Level Three

If detailed knowledge of the student's social development was required, the student's case would be referred to the counselor for further assessment and the development of an individualized program plan related to the development of appropriate and acceptable social behavior. The battery of assessment instruments to be used would be the Social Skills Rating System (Gresham & Elliott, 1990), the Self-Perception Profile for Adolescents (Harter, 1988), or the Self-Perception Profile for Children (Harter, 1985).

The Social Skills Diagnostic Screen

The Social Skills Diagnostic Screen is a 44-question checklist that may be used by parents, teachers, and students to rate an individual student's social skills. It contains four sections: personal factors, interpersonal factors, social reasoning skills, and classroom behaviors. Each question is marked on a five-point scale ranging from rarely to almost always. When the screen was first develop-

ed, ranges of social skill development were identified by the following raw score totals: well developed, 151-220; developing appropriately, 100-150; and requiring assistance, 40-99. The ranges have since been changed as a result of the field test data.

Primary Validation: 1991

During the second year of the project, the Social Skills Diagnostic Screen underwent primary validation work. A field test was conducted to determine the statistical reliability and validity of the instrument. A sample of 49 students was rated by teachers, peers, and parents. The students also completed a self-analysis with the assistance of qualified personnel.

A question-by-question analysis of response agreement by raters was carried out in order to discern section and aggregate score agreement between raters. Correlation coefficients of interrater reliability ranged from .43 between student and teacher, to a high of .87 between peer ratings and the mean.

The content of the screen was examined through a question-by-question response analysis. No question was found to have elicited zero response. Five questions were identified as needing refinement with regard to vocabulary, as they appeared to be ambiguous. One question was identified as needing total revision or withdrawal from the screen due to a perceived lack of relevance by various raters. Revision and refinement of the identified questions were recommended prior to a pilot test of the screen.

Percentile plotting of subject aggregate scores by peer, teacher, and student raters indicated that peer and teacher ratings were most often in agreement. In addition, students often rated themselves more highly developed than did other raters. Clearly students whose aggregate scores by all three raters fell at the 10th percentile or below required further assessment.

Standard deviation scores of two above or below the mean were established. Students scoring two standard deviations below the mean were those previously identified as having a social skills deficit. One could assume that students falling in that range would require assistance in some way. Further, there was some correlation between screen aggregate scores and percentile ranges in the standard deviation from the mean. Therefore, it was recommended that further study establish standard deviation scores.

Pilot Test: 1991-1992

The screen was further tested within the parameters of the three-level approach to measuring and reporting social skill development during the 1991-1992 school year. Replication of the procedures in the primary validation, using a kindergarten to grade 8 school of about 550 students, was intended to validate both the screen and the measurement approach.

The selection of subjects for this phase of the study began with the first reporting period in November 1991. On the first-term report card, students' achievement and social development were recorded. For the social development reporting, students were rated on a three-point scale of development on four elements regarding social skills: personal factors, interpersonal factors, social reasoning skills, and classroom behavior. Students were then grouped into three categories regarding social skills development: well developed, developing appropriately, and requiring assistance. Two students were

chosen at random from each of the categories in each classroom for the purposes of testing the Social Skills Diagnostic Screen. Parents of 100 students were approached to participate in the study. Seventy-eight parents agreed to complete a screen for their child. It should be noted that this number was further reduced to 72 due to student moves or illness. The homeroom teacher completed the screen as well. Each student completed a self-assessment assisted by a qualified adult. The students in the “well developed” and “developing appropriately” categories served as the control group. These students were retested at the end of the study, and their scores established the range of expected maturation in social skills over the time frame of the study.

In summary, in the first phase of the pilot test the screen demonstrated general content validity, although only limited concurrent validity with the Social Skills Rating System (Gresham & Elliott, 1990). The screen distinguished among the three student groups (well developed, developing appropriately, and requiring assistance). Student and teacher scores, for example, generally differed for the three groups of students, although there were some areas of overlap between the groupings.

Tests for reliability among different screen admissions (student, teacher, and parent) showed limited significant correlations between raters, a finding that was consistent with previous research (Cartledge & Milburn, 1986).

Overall, mean scores for all subjects were higher than expected, with all students scoring 100 or more. Fifty-two of the 72 subjects were in the 151+ (well developed) range. Student self-rated scores were consistently higher than the scores of other raters. The mean scores for parents, students, and teachers were similar over the first three sections of the screen with the classroom behavior section omitted. Mean scores for the “classroom behaviors” section were proportionately higher than for the rest of the test particularly for “developing appropriately” and “well developed” subjects.

Across all subjects and all grades, female subject mean scores were significantly higher than male mean scores (177.5 to 153.5). Mean scores by grade alone were similar. The construction of composite profiles for individual subjects suggested that such diagrams may prove useful visual tools for either case study or extended interview discussions.

The diagrammatic presentation of the scores enabled both differences and similarities to be clearly seen, as well as the overall results for the test.

Social Skills Intervention

Thirty-six students in the “requiring assistance” category on the report card were the subject group for developing individual program plans (IPPs) with respect to social skills. The focus of each IPP was to improve a student’s social skills in identifiable areas in ways that would be “environmentally reinforcing” (Allyon & Azrin, 1968). These students received specific social skills training from the school counselor over a period of six weeks. The counselor used the Social Skills Development Activity Manual (Sherman, 1991) as a resource for the implementation of the IPP. The manual was developed specifically to be used in conjunction with the Social Skills Diagnostic Screen and contains ideas, strategies, and teaching scenarios cross-referenced to the specific categories and skills contained in the screen.

At the completion of the six-week social skills intervention, students in all groups were again assessed by parents, teachers, and a student self-assessment. The results were then compared with the initial assessment to ascertain change.

Post-test Results

During the post-test phase of the pilot test, the screen once again demonstrated general content validity. The screen distinguished between subjects based on the three a priori defined student groupings.

Tests for reliability between screen admissions by different raters (student, teacher, and parent) once again showed limited significant correlations between raters. Mean scores in the post-test were similar to those of the pre-test. Mean scores for all subjects were once again higher than expected, as in the first phase of the pilot test; student rated means were again consistently higher than parent or teacher raters; mean scores for the parent, student, and teacher raters were similar over the first three sections of the screen; mean scores were proportionately higher for the "classroom behaviors" subsection; female subject mean scores were higher than male mean scores; and mean scores by subject grade were similar. The composite profiles emerged as potentially valuable visual tools for discussion of subject social competence.

T-test calculations revealed a high degree of consistency between test and retest scores for individual subjects and demonstrated the test-retest reliability of the screen.

The use of the test to examine the effectiveness of the interventions introduced for subjects identified as "requiring assistance" through the first phase of screen admission provided additional valuable findings. Ten of 20 subjects who received interventions between the test and retest demonstrated some degree of improvement in mean score. In eight of 16 cases, the parent rating was higher for the "requiring assistance" subjects, some by a significant amount (15). However, not all increases were for the same subjects, and only half of the subjects showed an increase in mean score. Although it was encouraging to note any increase in skill level of the "requiring assistance" students, it was not possible to identify any common factors in the increases. The nature of social behavior is such that it would be difficult to expect a significant rise in scores over such a relatively short time period. However, the small increases, as well as some written and verbal comments from parent and teacher raters, indicate that the interventions may have had some positive effect.

The overall high mean scores for subjects as a whole suggested the need for student classification based on numerical scoring to be revised prior to further testing. This has been done in the revised Social Skills Diagnostic Screen package.

In summary, the Social Skills Diagnostic Screen, although requiring some modifications, appeared to be a useful tool in social skills assessment. The screen could serve as a basis for discussion between parents and teachers regarding students' social skills development.

Discussion

The model of social competence developed in this study, and its extension into a three-level model of assessment and reporting for use in the school environment, forms an important initiative in the ongoing review of educational quality. The assessment and reporting of student social competence in the school context has to date been limited, with educators forced to rely on standardized commercial instruments that frequently do not meet the needs of either students or staff. The need for students to develop an appropriate level of social competence is critical given its close relationship with other areas of educational performance and growth. The literature clearly shows, for example, that the socially competent student is also the one who does well in school and by extension achieves "success" in life. By contrast, the experiences of students with social skill deficits is considerably less rewarding. The three-level approach to measuring social skills and the associated Social Skills Diagnostic Screen developed as part of the project, form one response to the need for positive indicators and standards that address student social skills in the school environment. In Fort McMurray Public's EQI Project, the focus has been on the development of an assessment model that is straightforward to use and practical. If the research has by extension also raised an awareness of the importance of social skill acquisition as it relates to student development, then a further goal has been met.

Although the focus on social competence and the subsequent development of a model for its assessment and reporting was developed based on an identified need in Fort McMurray School District No. 2833, it is reasonable to assume that the model developed may prove useful to other school jurisdictions both within and outside of Alberta. The close relationships described in the literature between students' social competence and their subsequent academic, psychological, and social development suggests the need for school jurisdictions to assess and report effectively and regularly on student social competence. Student difficulties in traditional academic domains may well be structurally related to problems in other areas such as social competence. If we do not address these areas, the student may continue to face challenges that ultimately impact on his or her performance. The conceptual model of social competence developed in this study and the three-level approach designed to accompany it both have potential for application in the school environment. Specifically, the three-level assessment approach is research-based and cross-referenced to desirable student outcomes, and thus may be effectively used in varied school settings for assessing and reporting student social skills.

Although a wealth of standardized commercial instruments is available, application in the school environment is limited given both their complexity and the need for considerable resources in their implementation.

As an extension of the advantage gained through the development of a practical assessment and reporting methodology, it may be anticipated that teachers will be able to address instruction in social skills more effectively and confidently. Not only will teachers be in a position to determine students' level of social competence, but they will also be able to review possible causes of skill deficits, as well as the impact of specific interventions designed to address deficits. In the long term, the development of an effective assessment and

reporting strategy may thus impact on the nature and content of social skills instruction in the classroom and school environments. In this context, the Social Skills Development Activity Manual, developed in conjunction with the screen, may serve as a valuable resource for teachers and parents.

Follow-up

In the Fort McMurray context, follow-up to the project will be ongoing. At one level parents have requested additional information on strategies they may use with their own children to work on appropriate social skill development. Similarly, professional and support staff from across the school district have expressed the desire both to facilitate and take part in initiatives relating to the whole area of social skills development and assessment. At a district level, the board has determined that student social competence is a priority for the 1992-1993 school year. As part of this, the three-level approach of measuring and reporting developed by the project will become an integral component of the policy and practice of the district.

References

- Alberta Education. (1989). *Guide to education: Junior high school handbook*. Edmonton: Author.
- Allyon, T., & Azrin, N. (1968). *The token economy*. New York: Appleton-Century-Crofts.
- Cartledge, G., & Milburn, J.F. (1986). *Teaching social skills to children*. New York: Pergamon.
- Clarke, L., Gresham, F.M., & Elliott, S.N. (1985). Development and validation of a social skills assessment measure: The TROSS-C. *Journal of Psychoeducational Assessment*, 4, 347-356.
- Fort McMurray School District No. 2833. (1993). A study to identify and measure desirable student social outcomes. In *Achieving quality*. Final Report of the Educational Quality Indicators Initiative. Edmonton: Alberta Education.
- Gresham, F.M., & Elliott, S.N. (1990). *Social skills rating system*. Circle Pine, MN: American Guidance Service.
- Hargie, O., & P. McCartan (1986). *Social skills training and psychiatric nursing*. London: Croom Helm.
- Harter, S. (1985). *Manual for the Self-Perception Profile for Children*. Denver, CO: University of Denver.
- Harter, S. (1988). *Manual for the Self-Perception Profile for Adolescents*. Denver, CO: University of Denver.
- Perry, D.G., & Perry, L.C. (1987, July). *Applications of Dodge's social information processing model of social competence to the study of prosocial behavior in children*. Paper presented at the Biennial meeting of the International Society for the Study of Behavioral Development, Tokyo.
- Province of Alberta. (1988). *School act*. Edmonton: Queen's Printer.
- Reschly, D.L., & Gresham, F.M. (1981). *Use of social competence measures to facilitate parent and teacher involvement and non-biased assessment*. Ames, IO: Iowa State University.
- Sherman, A. (1991). *Social skills development activity manual*. Fort McMurray School District No. 2833.
- Worthen, B.R., & Sanders, J.R. (1987). *Educational evaluation: Alternative approaches and practical guidelines*. New York: Longman.
- Young, D. (1990, June). *Measuring social competence in students*. Paper presented at the annual meeting of the Canadian Educational Researchers' Association, Victoria.

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Signs of Learning in the Affective Domain

The affective side of student development has become a special concern of schools. We have long acknowledged the role of the home and the church in the formation of basic dispositions, but their influence has waned because of social changes. The media have an undeniable claim on the amount and type of information given to students; technology has modified and continues to modify the way knowledge is acquired. In some measure, the affective domain deals with those skills and abilities that help students make sense of the world and its often conflicting information. Perhaps in the past the schools assumed that children already possessed desirable behaviors; this project seems to show that assumption to be unsafe. It says we can identify these abilities, teach them, and observe their development. This project shows the worth of attending to affective learning.

De plus en plus, les écoles considèrent d'une façon spéciale le côté affectif du développement de l'élève. Depuis longtemps, on reconnaît le rôle que jouent l'Église et la famille dans la formation des orientations de base chez l'enfant, mais leur influence a toutefois changé en raison des changements sociaux qui prédominent. Bien sûr, les médias contrôlent la qualité et la quantité d'information qui parvient aux élèves. La technologie a quand même modifié et continue à modifier les façons qu'on acquiert les connaissances. D'une certaine façon, le côté affectif traite ces habiletés et compétences qui permettent aux élèves de fonctionner dans un monde où il existe souvent de l'information contradictoire. Peut-être que dans le passé, les écoles croyaient que les élèves possédaient déjà des comportements acceptables et désirables. Ce projet semble démontrer que cette façon de voir les élèves est éronnée. Il démontre qu'on peut identifier ces habiletés, les enseigner et en observer leur développement. Ce projet démontre qu'il vaut mieux porter plus d'attention à l'apprentissage affectif.

Introduction

The Lethbridge Catholic EQI Project recognizes the importance of learning outcomes in the affective domain and the efforts of teachers to comply with assessing and reporting those outcomes. The project was designed to operate within the classroom setting and to be subject to its limitations.

Purposes

The goals of schooling set out by Alberta Education include attitudes that are in the affective domain. One purpose of this study was to find indicators to identify these attitudes.

A second purpose was to devise a system for monitoring and recording behaviors that are the expression of the attitudes. The formation of positive

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attitudes is an important goal in education. It is the task of educators to teach and encourage growth in affective learning. The third purpose of this study was to assist educators and parents in their efforts to teach and model behaviors that express the formation of positive attitudes.

Background

Lethbridge is a city of 60,000 in southwestern Alberta. Education in Lethbridge has been shared for the past 100 years between the Lethbridge Public School District and the Lethbridge Catholic School District.

The Lethbridge Catholic School District has one high school, one junior high school, and six elementary schools with 170 teachers and 70 support staff to serve 2,700 students. The schools are places of hope where students are affirmed. The schools aim to provide excellent academic education in an environment of love and respect.

The importance of the affective domain to Lethbridge Catholic Schools is documented in its policies, which aim to create a positive climate; to help shape wholesome self-images in students; to build community through modeling; to set guidelines for spiritual growth and development; to acknowledge the dignity of helping children grow according to their abilities; to instill a responsible attitude; to guide the process of evaluation, provide a sense of hope and success, recognize the need for continuous evaluation and trace the steps to take in order to celebrate learning.

It is from this background that the Lethbridge Catholic School District came to the decision to search for signs of learning in the affective domain.

Assumptions

The project is based on the following assumptions and beliefs, which both limit and direct the research.

1. The affective domain includes attitudes, feelings, emotions, and predispositions. Attitudes are of paramount importance to learning and they predispose us to behave in certain ways. Attitudes and values become evident in behavior.
2. Intelligence is defined as behavior and is skill based. It is a dynamic characteristic that can be taught and learned. Intelligence is expressed in behavior.
3. Tests and exams evaluate the acquisition of concepts and skills, but observation of behavior identifies the acquisition of attitudes.
4. A student working to potential is dynamic in that the student keeps trying, continues to strive, and does not give up. Potential is not a preordained state to be filled; it is learning behavior that can be observed.
5. Learning is celebrated when we tell what the student has learned, what is not yet learned, and what plans we have to do more. In its ideal form, learning is a joyful process.
6. The core of the curriculum is teaching behaviors that allow students to make informed choices. The act of choosing well requires a strong self-image.

Scope

The Lethbridge Catholic EQI Project relates specifically to signs of learning in the affective domain. It defines the affective domain as that area of student

development that includes attitudes, interests, appreciation, feelings, emotions, and predispositions. It makes no claim to finding signs of learning that relate to cognitive growth or skill development.

Related Literature

Definitions

Beane (1985) describes the affective domain as that area of human nature and conduct that deals with emotions, feelings, values, attitudes, predispositions, and morals. Rubin (1974) says that affective education is about the learner's attitude toward self, toward life, toward school, and toward purpose. Attitudes are expressed in behavior. Gough (1987) states that what goes on inside the behaving person generates human behavior, whereas Wynne and Walberg (1985) say that the test of the development of values is in their action.

Much earlier, Festinger (1957) presented the theory that what a person knows, believes, and does are always striving for consonance; that opinions and attitudes tend to exist in clusters that are internally consistent. The need for affective education, the lack of a systematic effort to collect evidence of affective growth, and the use of general terms was addressed by the taxonomy of affective domain objectives by Krathwohl, Bloom, and Masia (1964). Once terms were defined, the literature search became more focused on issues specific to our study.

Affective Learning

Alberta Education (1991, 1992) acknowledges that it is not possible to teach children without integrating all the domains, that students learn by integrating content with process, and that schools play a significant role in teaching affective education. Bredekamp (1988) believes that failure to attend to the integrated development of all domains is often the root cause of school failure.

Bloom, Hastings, and Madaus (1971) found that when schools value affective objectives, include them in the goals of schooling, and define them in behavioral terms, there is an obligation to evaluate the effectiveness of the curriculum in forming those behaviors. Beane (1985) discusses the benefits and shortcomings of affective education and the controversy over the place of affective education in the curriculum. Beane uses values education, moral education, developmental and humanistic education to determine that affective education is a necessary component for genuine learning, and that all of society shares responsibility for it.

The research of Schaps, Solomon, and Watson (1985) showed that even though the position of the Child Development Program in California was that achieving prosocial goals and preserving an emphasis on academic achievement are equally important, parents held character development and development of personal qualities slightly higher than goals related directly to school achievement. Wynne and Walberg (1985) states that character development and academic excellence complement each other. They define *character* as morally relevant conduct or words that are observable in actions. Coles (1985) described the indicators of character by talking to teachers and students in the United States. It is interesting to note the similarity between Coles' indicators and the indicators described by participants in the Lethbridge project.

Bloom et al. (1971) declare that the evaluation of affective objectives should not be equated with assigning a grade or giving an examination, because it is feedback to the student that is the purpose of formative and diagnostic evaluation of affective objectives.

Bloom, Madaus, and Hastings (1981) state that evaluating affective learning can be done by observation; unobtrusive techniques such as library records, student products, voluntary seating arrangements, journals, and notebooks; structured or unstructured interviews; open-ended questions; and questionnaires.

Smith (1992) contrasts the official, almost universally held view that learning is difficult, requires effort, and is work to the informal view held by every culture in the world that learning is "continuous, spontaneous, and effortless, requiring no particular attention, conscious motivation, or specific reinforcement; learning occurs in all kinds of situations and is not subject to forgetting" (p. 432). Because of this informal view of learning, the Lethbridge project encouraged the involvement of parents in the assessment procedure.

Berger (1991) states that schools need to look at what aspects of structure and culture support and compel students to do their best and to act their best, because when students leave school they are judged on the quality of the work they produce and the quality of personal skills they possess, not on their ability to take tests. Berger found that an environment of risk-taking, cooperation, and learning results when teachers model behavior by taking risks, sharing feelings, doing work, accepting criticism, and admitting mistakes. His findings that appraisals of self are the ultimate locus of all standards and informal peer appraisals determine what is appropriate and acceptable work and behavior are reflected in the Lethbridge project.

Validation

The research coordinator took note of the characteristics of qualitative research as outlined by Borg and Gall (1989) and attempted to use methods of data collection that minimized error and maximized information.

Reliability becomes a variable rather than a goal when we include the work of Paulson and Paulson (1991). They describe the understanding of human performance as a multidimensional phenomenon that occurs in a complex social context. They found that the development of human mental processes is not linear and additive. Paulson and Paulson describe human behavior as discontinuous and complex.

A strong claim for the scientific legitimacy of inquiry-guided and interpretive studies is made by Mishler (1990) who reformulates validation as the social construction of knowledge in which the key issue is whether the community of scientists evaluates reported findings as sufficiently trustworthy to rely on for their own work. He defines validation as the processes through which we make claims for and evaluate the "trustworthiness" of reported observations, interpretations, and generalizations. He makes validation rather than validity the key term and focuses on the range of ongoing activities through which claims are made and appraised rather than on the static properties of instruments and scores. To assure replication, the prescribed route to validation, Mishler says inquiry-guided and interpretive researchers

have the task of articulating and clarifying the features and methods of studies to show how the work is done and what problems become accessible to study.

Assessment

Nagy's (1991) cautionary note on the direction of development in measurement/assessment addresses how difficult it is to assess the "tender fruit" of education. He suggests that assessment of these affective goals may involve assessment of process, use of proxy outcomes, unobtrusive observations, and self-assessment.

Rogers (1991) states that the daily assessment of student learning is one of the most demanding, complex, and important teacher tasks, yet teachers do not feel competent, nor are they competent in assessment procedures. He suggests several assessment components to include in teacher preparation courses to help remedy the situation.

Chittenden (1991) sees interest growing in assessment methods that are more natural and closer to classroom practices and performance measures, but believes that assessment is an attitude before it is a method. He sees observation as potentially the richest source of information, yet the most elusive; performance samples as tangible information; and tests as contributing to but not defining the assessment. Chittenden recommends asking teachers what indicators they use to show progress.

The Bachor and Anderson report (1991) on classroom assessment practices of primary classrooms shows that observation is the most widely and frequently used procedure, along with collection of work samples, checklists, interviews, and student self-evaluations. Wilson (1991) notes conflicting pressures from students, parents, teachers, administrators, and professional evaluators in regard to assessment. He concludes that if teachers use observation to develop less structured assessments, observation skills will have to be developed.

Standardized Tests

The Lethbridge Catholic EQI Project offers a systematic process for observing behaviors in authentic situations and thereby broadening the assessment base. Perrone (1991) says to ensure that students are thinkers, readers, writers, and comprehenders of knowledge, there must be a systematic process to determine results and improve the quality of student learning. Using authentic assessment such as portfolios, documentation, and exhibitions contributes to student self-evaluation, and teachers become thoughtful observers, documenters, and organizers of evaluations.

Zessoules and Gardner (1991) show that even though standardized tests influence institutional goals, teacher performance, and program funding, teachers still depend on authentic assessments that include: frequent sampling of performances; monitoring of student capacity for being thoughtful, creative, curious, and self-directed; and observing students' use of skills in making judgments, drawing connections, applying understanding, experimenting, revising, refining, crafting and presenting. These new modes of assessment will be discontinuous with teaching and learning unless they reach into school culture, pedagogical approaches, expectations, standards of performance, and students' own capacities for self-critical judgment.

Glickman (1991) feels that the worth of schools is measured more on the learning displayed in authentic situations than on student scores on standardized tests. Carroll and Carini (1991) feel that standardized tests reduce learning to numbers that indicate how many questions a child answered correctly on the day of the test, whereas teachers observe subtle patterns and continuities, areas of interest or wonder, self-awareness, human effort, and possibility.

Jervis (1991) says that teachers should not rely on standardized tests as the crucial measure of achievement because testing rituals mirror a society absorbed with comparing children one against the other, determine what is taught, and interfere with efforts to build students' self-confidence.

Zessoules and Gardner (1991) also state that standardized tests displace students from the responsibility and process of assessment because they lack the goals of reflection; of judging and refining one's work and effort; of examining the steps, choices, and decisions that guided one's work, of directing one's own growth and development; of making sense of one's endeavors and accomplishments; and of judging success.

Design

The project was designed to determine what affective learning is valued by the stakeholders of Lethbridge Catholic Schools. It was to identify behaviors that are the expression of affective learning. The project set out to establish a means of assessing the presence of the identified behaviors, to develop instrumentation to help record and affirm those behaviors, and thereby to assess affective learning.

Development

During the first year of the EQI project, a broad range of literature was examined and studied. We surveyed the extensive literature on affective education, its significance, its problems, its relevance to other aspects of education, and its manifestation in observable actions and products. We also looked at literature from the popular culture that makes affective outcomes into marketable products.

The coordinator interviewed 100 Lethbridge stakeholders during the first year. The purpose of the interviews was to get unrehearsed responses to what affective learning was deemed to be desirable and to denote quality in education. Indicators of affective learning were categorized and proposed. They were clarified, refined, regrouped, and validated.

During year two of the EQI project, the indicators continued to evolve. A theoretical framework was proposed and a conceptual model was designed. Both ends of the behavior spectrum were described, and a mirror image matrix of positive and negative behaviors was developed. Research continued into the ways and means of assessing the presence or absence of student behaviors.

In the third and final year of the EQI project, instruments were developed to enable the assessment, affirmation, and communication of affective learning. Self-evaluation instruments and teaching methods were also designed and developed.

Theoretical constructs were refined. Implementation of the project began, as did dissemination of the findings.

Refinement

The interview data were studied and sorted into broad categories of like answers. Responses of similar nature were grouped into those dealing with behaviors in:

- self-esteem, self-worth;
- well rounded, motivated, risk taker, extra work;
- goals, values, decisions for behavior;
- social action, justice;
- communication with others;
- interpersonal relationships;
- problem solving;
- happy and positive attitude;
- creativity, curiosity, questioning, thinking;
- academic excellence.

Teachers in the Lethbridge Catholic Schools were consulted in informal interview situations. These teachers refined, clarified, and elaborated on the significant behaviors.

The coordinator observed students in classrooms in an attempt to observe the behaviors in action and to validate their significance. She consulted groups of teachers regarding typical behaviors for specific age groups.

The original groups of similar responses were regrouped using the frequency of key points as an organizer. The behaviors were expanded to reflect the clarification and refinement of discussions with teachers. Descriptions of behaviors were expanded to include observations in the classrooms. The behaviors were then tentatively proposed to teachers as indicators of affective learning.

Validation

The tentative set of 20 indicators was validated by consulting the literature, examining Alberta Education's affective expectations and consulting policies of the Lethbridge Catholic Schools.

We discovered that the behaviors identified as proposed indicators were congruent with the 26 personal characteristics that Alberta identifies as desirable for schools to develop in students (Alberta Education, 1992). These 26 characteristics include the ethical/moral characteristics: respectful, responsible, fair/just, tolerant, honest, kind, forgiving, committed to democratic ideals, loyal; the intellectual characteristics: open-minded, thinks critically, intellectually curious, creative, pursues excellence, appreciative; and the social/personal characteristics: cooperative, accepting, conserving, industrious, possesses a strong sense of self-worth, persevering, prompt, neat, attentive, unselfish, mentally and physically fit.

Validation included reviewing the expectations found in the interviews and clarifying the expectations with teachers who were not previously consulted or interviewed. Validation by other persons such as retired educators, postsecondary educators, clergy, trustees, tradesmen, and professionals was completed by asking them to verify that the list of expected behaviors was

complete and that these behaviors were those valued by the Lethbridge Catholic School stakeholders. The validators were asked to add any areas that were overlooked, any behaviors not included, and any other signs of learning. They were asked to verify that the behaviors listed were signs of learning. They were also asked to change or delete any behaviors that were not consistent, to question those that were not clear, and to make suggestions.

Validation took place in a practical sense in the classrooms. Teachers were asked to add to or delete behaviors that were not relevant to teaching and learning. The coordinator observed classrooms to validate the behaviors. The responses of teachers were used and the list of behaviors was refined, expanded, defined in more precise terms, and validated again in the classroom.

Further analysis of the data resulted in homogeneous groups of three behaviors for each indicator. These were behaviors:

1. that showed *self-worth*;
2. that dealt with *interpersonal relationships*;
3. relating to *world awareness* and work world expectations;
4. that showed *learning*;
5. relating to *spiritual life*, values, beliefs and purpose.

Field Test Results

Field testing showed that indicators of affective learning need not be totally comprehensive but they must be typical.

Reporting of observation need not be of all affective indicators, for all students, at all times; but reporting of significant observations of individual students is helpful.

Reporting of affective learning is reporting of the observation of positive behavior; but observation of negative behavior, though it need not be reported, is the basis for action plans to remedy the deficiencies.

Checklists are useful reminders of behaviors observed, but they are too limiting.

Published tests, instruments, and measures of affective learning were not seen to be the most valid and pure measure of behavior.

Behavior is observed in process and in product by teachers; behavior is observed by parents and peers; behavior is observed by students themselves when given time and freedom to reflect.

In order to operationalize the indicators, there would need to be more specific descriptors of representative behaviors for each indicator.

There would need to be ways to report observations in a positive manner. These ways would need to be easy, efficient and effective to use.

Conceptual Model

A conceptual model grew from consultation with teachers. The model began with triangles but changed to circles. Through collaborative action, the Self was described as the core of the student. Self-worth, rooted in the Creator, grows to completion through interpersonal relationships, feedback from learning experiences, and from daily living in the world. The four circles are interwoven, overlapping, interlocking, and interdependent. The spiritual dimension unifies the other four by identifying a purposiveness in life, its

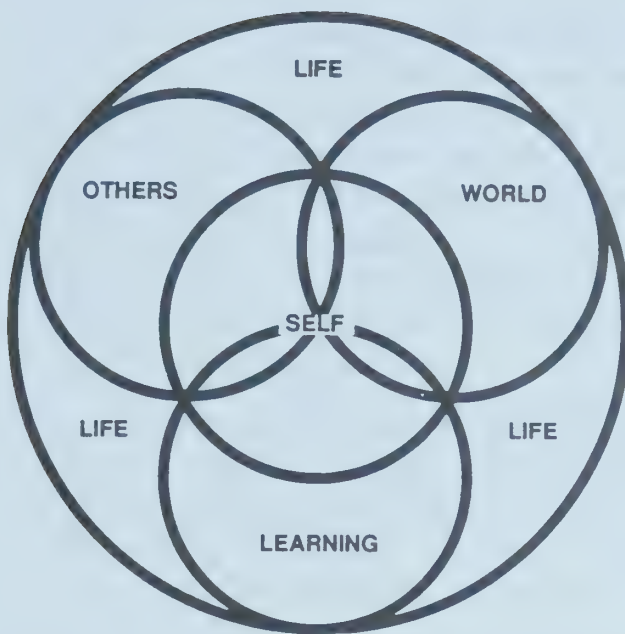


Figure 1. The conceptual model.

events and activities; it provides the hope that leads the learner on (see Figure 1).

The Negative Schema

The validity or trustworthiness of the positive behaviors was tested by creating a mirror image of negative behaviors. Negative behaviors that show affective decay rather than affective growth came from interview data from professionals in social services areas and correctional institutes. People involved with rescue operations described their clients as withdrawn, detached, ready to place the blame for their problems on someone or something else, defiant, spiteful, drifting aimlessly through life with no optimism or hope for the future.

Teachers were consulted to validate that the negative behaviors named are observable in classrooms and that they are deemed to be indicators of affective decay rather than growth.

A positive matrix (Figure 2) and a negative matrix (Figure 3) were developed. The positive matrix formed the nucleus of the brochure used in the implementation stage. The negative matrix is theoretical in nature and not part of the instrumentation or implementation.

A Celebration of Learning

A Celebration of Learning is based on the goals and objectives of the Lethbridge Catholic School District and those of Alberta Education. In A Celebration of Learning the ideals of hope, affirmation, reconciliation and renewal guide the processes of evaluation and student progress. Evaluating the progress of students requires that teachers tell the students what they have learned and celebrate it. Teachers inform students of what they have not yet learned, and make plans to work with the students and their parents to overcome the deficiencies.

This is an effective way to report affective learning. Teachers observe behaviors that show affective learning and affirm students when affective

in SELF- WORTH	SHOWS CONFIDENCE	ASSUMES RESPONSIBILITY	DEVELOPS TALENTS
in RELATING TO OTHERS	RESPONDS TO AUTHORITY	APPRECIATES OTHERS	RESPECTS RIGHTS
in WORLD AWARENESS	PARTICIPATES AND COOPERATES	PLAYS FAIR AND SHARES	ATTENDS AND WORKS
in LEARNING	ENJOYS AND DESIRES LEARNING	DIRECTS AND EXPANDS LEARNING	THINKS, ASKS, SOLVES AND CHANGES
in SPIRITUAL LIFE	BELIEVES	HOPES	LOVES

Figure 2. Indicators and behaviors of affective growth.

progress is observed. Teachers inform students of the affective learning that has not yet been observed and make plans with both students and parents to rectify the lack of positive affective learning. Plans may include teaching or modeling the behavior so that students learn it and put it into action.

Signs of Affective Learning

This project identified five indicators of affective learning. Each of the indicators is expressed and observed through three dynamic behaviors. These are dynamic, constructive behaviors that can be observed and celebrated as signs of learning and growth.

in SELF- WORTH	DEMEANS SELF AND GIVES UP	SHIRKS RESPONSIBILITY	WASTES TIME AND TALENTS
in RELATING TO OTHERS	DEFIES AUTHORITY	DERIDES AND BLAMES OTHERS	EXPLOITS RIGHTS OF OTHERS
in WORLD AWARENESS	WITHDRAWS AND DISRUPTS	OBSTRUCTS JUSTICE	NEGLECTS AND REJECTS WORK
in LEARNING	DISDAINS AND SCORNS LEARNING	HINDERS AND IMPEDES LEARNING	CLOSES MIND TO LEARNING AND CHANGE
in SPIRITUAL LIFE	DOUBTS AND DENIES VALUE SYSTEM	DRIFTS AND DESPAIRS	DESPISES SPITES AND RESENTS

Figure 3. Indicators and behaviors of affective decay.

Indicator I is Self-worth

1. Demonstrates confidence, self-worth, and security by taking risks, accepting error with ease and good humor, maintaining a healthy life, and taking pride in posture and appearance.
2. Assumes responsibility by accepting the consequences of actions, accepting leadership, cooperating with responsible leaders, and demonstrating emotional well-being.
3. Perseveres in developing gifts and talents through consistent effort, efficient use of time, and taking pride in accomplishments.

Indicator II is Relating to Others

4. Shows consideration and respect for authority while understanding the legitimacy of dissent by choosing appropriate ways to agree or disagree, by responding to adult direction and by following rules.
5. Appreciates the accomplishments of others by affirming and encouraging them, being sensitive to their feelings, and by accepting winning or losing in a gracious manner.
6. Respects the rights, ideas, and property of others by valuing diversity of ideas, caring for the property of others, accepting and understanding differences, and respecting the right of others to learn.

Indicator III is World Awareness

7. Displays a belief in the value of citizenship by contributing to the building of community, participating, sharing information or time or energy or resources, cooperating in groups, volunteering, and becoming involved in community endeavors.
8. Demonstrates a commitment to social justice and fair play by preserving the environment, conserving natural resources, using equipment and materials responsibly, and sharing generously.
9. Exemplifies dependability and dedication by being present, punctual, prepared, attentive, diligent, good humored, and able to work independently.

Indicator IV is Learning

10. Shows a desire to learn and to search for truth by being open and receptive to learning, affirming it and reflecting it with happiness, enthusiasm, and satisfaction.
11. Demonstrates self-direction and self-motivation by initiating activities, accepting challenges, extending knowledge, exploring possibilities, expanding horizons, and creating.
12. Displays intellectual curiosity by maintaining an open and inquisitive mind, being flexible to change, using skills of intelligence such as critical thinking skills, asking informed questions, and employing a variety of problem solving techniques.

Indicator V is Spiritual Life

13. Demonstrates faith in a Supreme Being and in a system of values that distinguishes right from wrong by displaying truth, honesty, integrity, justice, and inner peace.

14. Exemplifies hope, trust, and purpose in life by being prudent and wise in decision making, and working toward a goal.
15. Personifies love by showing acceptance, thankfulness, tolerance, compassion, reconciliation, and a sense of selflessness through considerate, responsible, and trustworthy behavior.

These signs of affective learning are observed in actions and behaviors. Typical actions and behaviors were described, systematized, and refined. The descriptions expanded horizons and were included in a folder listing seven possible actions that could be observed for each of the indicators of affective learning.

Implementation

The research with teachers in the classroom while developing the indicators demonstrated that any procedure for observation of behaviors must meet these criteria. The procedure must be simple, defensible, observable, time efficient, and useful. Failure to meet any one of these criteria results in rejection of the procedure.

The research showed that affective learning was addressed by describing behaviors that are desirable; observing the presence or absence of behaviors; affirming students when desirable behaviors are observed; conferring with students and parents regarding the absence of specific behaviors; and teaching, modeling, and valuing behaviors identified as indicators of affective learning.

Instruments

The instruments designed are simple; the procedure is simple and time efficient; the indicators are defensible. Observation can be used in the classroom, on the playground, and at home. Behaviors are observable by parents, teachers, and students. Instruments for recording observations are open-ended. Instruments are designed to record and report positive behaviors in a constructive manner. Recording of observations is simple; reporting is simple yet affirming to students, informative for parents, and useful for teachers.

One instrument developed was a brochure that identified the five indicators each with three behaviors that show learning. A folder identified seven representative actions for each of the 15 behaviors. A class checklist of the 15 behaviors allows for a quick method of recording observations that can be written in full later.

Self-evaluations sheets for students were developed. There are separate versions for primary (grades 1-3), elementary (grades 4-6), and secondary (grades 7-12) students. The primary student self-evaluations are five individual sheets, one for each indicator. Each sheet asks eight questions to help students think about how they behave and to record their thoughts by coloring happy faces. The elementary self-evaluation consists of one sheet that poses seven questions for each of the five indicators. It also presents an opportunity to reflect on which behaviors they do well, which behaviors have improved, and which still need improvement. The secondary self-evaluation is similar to the elementary, but the vocabulary and reflections take into account the maturity of the students.

Good news notes were developed for students and parents. The notes are designed to allow teachers to give immediate feedback to students and parents when constructive and encouraging behavior is observed at school. The carbon copy of the report allows teachers to keep a record of the observation for future assessment, discussion, or conference.

A presentation kit encloses the instruments, briefly describes our assumptions, and offers a user's guide and teaching tips.

Observations

The coordinator was actively involved in the implementation. She communicated the project and findings to district teachers formally on a school-by-school basis and informally on a one-to-one basis in staffrooms and classrooms. The coordinator was seen as a disinterested participant with whom teachers were free to discuss the negative, the positive, the interesting, and the not so interesting results of introducing the concept of observing behavior as an authentic assessment tool.

The demands of the classroom presented some difficulty in gaining access to teachers' time. The coordinator, a teacher, overcame this problem at one stage of the implementation by taking over the teaching and evaluating role of classrooms so that teachers could experience the benefits of observing the positive behaviors of their students in authentic situations. At another stage, the coordinator observed the behavior of students in classrooms and reported orally to the students and the teacher what type of learning behaviors were observed. This exercise assisted teachers in looking for positive behaviors rather than seeing only negative behaviors that seem to jump out at you.

The concept of celebrating learning by observing behavior must fit into an already existing system of assessment, evaluation, and communication. To facilitate this the coordinator became a participant in school-based discussion, planning and redesigning of reporting systems. Because each of the eight schools in the district has its own reporting system, the coordinator incorporated the results of the project in a different manner for each group.

Implementation required making distinctions between observing and inferring. The superintendent, who regularly communicates concepts, ideas, theories, and assumptions to all teachers in the system through *Viewpoints* newsletters, exemplified observation and inference in one of the newsletters.

During the implementation process it became evident that at the secondary level some teachers viewed affective learning as an add-on to the prescribed curriculum. They did not feel that there was time for anything extra in a semester. To answer this objection, the coordinator explained through personal contacts with both the junior high school and the senior high school that the affective domain is interwoven, interrelated, and intertwined with every other domain to the extent that it is impossible to refrain from addressing affect.

To assist the junior and senior high schools in implementing the reporting of positive behaviors apart from the cognitive and skill areas, the coordinator systematized the computer comments used on student progress reports. Comments were organized into administrative, achievement, skill, and behavior sections. The behavior comments were divided into those that described posi-

tive actions observed and those that described negative actions observed. An attempt was made to delete inferences wherever possible.

There was limited acceptance of the idea in the high school but much greater acceptance in the junior high school. However, some teachers in both junior and senior high schools adopted the concept of affirming positive behaviors with good news notes, rewriting the computer comments, and teaching behaviors in classes such as Career and Life Management, Religious Studies, and Health and Personal Development.

We discontinued an attempt to describe growth in behavior that would differentiate between the nuances of behavior as the students mature. The vast array of possibilities would be extremely cumbersome and would violate our criteria of practicality and simplicity. Because behavior does not develop in a linear fashion, we found it of no value to describe behavior as a series of benchmarks or standards representative of specific age groups.

No portion of the project was mandated to teachers in Lethbridge Catholic Schools. It was offered to teachers to accept or reject in part or in whole. The only thing asked was that teachers continue to give feedback to the coordinator on how they used the behavior indicators, how they observed behavior, what instruments worked, what ideas did not work, what reactions they received from parents and students, and any suggestions they had to offer.

The cardinal rule in implementing the project hinged on being able to show an immediate relationship between the theoretical and the practical aspects of it. The tension between the practical and the theoretical was lessened when it was made clear that the theory could be put into practice in a simple and efficient manner that would prove beneficial to teachers, students, and parents.

Conclusions

The purpose of the project was to find signs of learning in the affective domain. The project began by identifying indicators of the formation and presence of those attitudes deemed to be important goals of education. The project set out to design a system to monitor, record, and report behavior, the expression of attitudes. Unexpected purposes of the project became obvious; one was the need to train educators to observe positive behavior; another was the need to assist educators to teach and to model behaviors.

The research of the Lethbridge Catholic EQI Project found specific observable behaviors indicating affective growth that are valued by their stakeholders, promoted by Lethbridge Catholic School policies, mandated by Alberta Education, and supported in the literature.

There is significant similarity between the responses of the various stakeholders to the interview questions. Stakeholders were asked to identify affective qualities that they valued as significant outcomes of schooling. The similarity of responses resulted in the indicators of affective learning identified by this project.

The behaviors identified as indicators of affective learning are acceptable; they have not been disputed. They are valid and have shown trustworthiness. They are useful and practical in the classroom. They are transferable to other

school districts. They are comprehensive; there have been no further suggestions. They are stimulating to teachers in their practice.

In the implementation of the project, it is important to note that we did not mandate the use of the behaviors. We offered it to teachers to use in the existing system to the degree that teachers found it useful. Our observation is that many teachers are ready to use or are using the behaviors and their representative actions to assess affective learning. They use the instruments:

- to teach behavior;
- to describe behavior;
- to talk to parents and assist them in parenting;
- to use as a common reference in conferences;
- to help write anecdotal reports;
- to get ideas for report card comments;
- to set objectives and goals for behavior;
- to plan lessons and activities;
- to focus their observations on specific actions;
- to evaluate the affective areas of learning;
- to describe growth and development of students in special education programs.

In the past we lacked an adequate vocabulary to simultaneously identify behavioral growth and deficiency. We recognize the need to identify the deficiency but not destroy the child. We have difficulty reporting that a student needs further development in behavior. The long list of behaviors prepares us to accept that behavior is not perfect in anyone, but that we can see growth in behavior if we choose to do so.

This project used observation of process and of product to assess behavior in an attempt to avoid the cognitive component of instrumental approaches and to provide a purer measure of affective learning. The professional observation of teachers can be augmented by observations of parents, students, and peers.

We feel confident that the behaviors identified as signs of learning in the affective domain make sense. They are research based and they are valued by the community.

It is difficult to break the cultural bias that wants to compare. Some people still see rating, grading, and comparing as necessary. Some people regard good grades as rewards and poor grades as goads to do better. Others believe there is a need for children to learn to fail and that mistakes are flaws that when repeated are the result of willfulness. Yet we propose that the presence or absence of the identified positive behaviors is significant in itself.

We find often that schools are applying evaluation concepts derived from assessing the cognitive and the psychomotor domains to assessment in the affective domain. This project has provided concepts and vocabulary specific to assessing affective learning.

Negative behaviors are easily identified and are developed without assistance. Positive behaviors are not so easily identified because we assume them and they are subject to being overlooked. They are not always acknowledged or reported as signs of learning. There appeared to be no benefit in developing the negative side of the behavior chart any further than to use it to validate our

findings. However, developing the positive side produced objectives for student outcomes and pedagogical consequences in teaching, demonstrating, and modeling behaviors.

The findings of this project have a countercultural quality in that they go against an educational concept derived perhaps from a confused religious concept. That confusion equated sin and error. Behaviors that were in error were sought out, exposed, and expunged. But A Celebration of Learning would have the teacher look for opportunities to observe behavior, to find joy in the behavior of children in the act of learning, and to take pleasure in letting them know of it.

Implications

Behavior is dynamic and does not follow a linear pattern of development. Attempts to set standards by which behavior can be rated, graded, or quantified would serve little purpose. The behavior of students is observed in places other than the school. It is important that multiple observers contribute to the assessment of affective learning.

The procedure of using lists of descriptors to identify affective learning is instructive for students and parents. It is beneficial to teachers who can then base instructional and reporting decisions on direct observation. Including observation of behavior as authentic assessment of learning broadens the base of assessment and gives hope to students who have traditionally been assessed only on cognitive achievement and skill development. Good news notes give immediate feedback to students on their behaviors that are conducive to learning.

The precision of the indicators and their respective behaviors strengthens their use in observation and reduces the need for inference.

There is resistance to implementing something new into an existing system. The new concept requires that old concepts change in shape or in significance. It requires flexibility in the system. In order for a new concept to be accepted and incorporated it must not only be simple, efficient, effective, and beneficial, but it must be seen to be so.

References

- Alberta Education. (1991). *The emerging student: relationships among the cognitive, social and physical domains of development*. Edmonton: Author, Curriculum Branch.
- Alberta Education. (1992). *Guide to education: Junior high school handbook 1992-93*. Edmonton: Author, Curriculum Branch.
- Bachor, D.G., & Anderson, J.O. (1991). *Assessment practices in the primary classroom*. Paper presented at the annual meeting of the Canadian Society for the Study of Education, Kingston, Ontario.
- Beane, J.A. (1985). The continuing controversy over affective education. *Educational Leadership*, 43(4), 26-31.
- Berger, R. (1991). Building a school culture of high standards: A teacher's perspective. In V. Perrone (Ed.), *Expanding student assessment* (pp. 32-39). Alexandria, VA: Association for Supervision and Curriculum Development.
- Bloom, B.S., Hastings, J.T., & Madaus, G.F. (1971). *Handbook on formative and summative evaluation of student learning*. New York: McGraw-Hill.
- Bloom, B.S., Madaus, G.F., & Hastings, J.T. (1981). *Evaluation to improve learning*. New York: McGraw Hill.
- Borg, W.R., & Gall, M.D. (1989). *Educational research: An introduction* (5th ed.) New York: Longman.

- Bredenkamp, S. (Ed.). (1988, January). The National Association for the Education of Young Children position statement on developmentally appropriate practice in the primary grades, serving 5 through 8 year olds. *Young Children*, 64-84.
- Carroll, D., & Carini, P. (1991). Tapping teachers' knowledge. In V. Perrone (Ed.), *Expanding student assessment* (pp. 40-46). Alexandria, VA: Association for Supervision and Curriculum Development.
- Chittenden, E. (1991). Authentic assessment, evaluation, and documentation of student performance. In V. Perrone (Ed.), *Expanding student assessment* (pp. 22-31). Virginia: Association for Supervision and Curriculum Development.
- Coles, R. (1985). The moral life of children. *Educational Leadership*, 43(4), 19-25.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Glickman, C.D. (1991). Pretending not to know what we know. *Educational Leadership*, 48(8), 4-10.
- Gough, P.B. (1987). The key to improving schools: An interview with William Glasser. *Phi Delta Kappan*, 68, 656-662.
- Jervis, K. (1991). Closed gates in a New York city school. In V. Perrone, (Ed.), *Expanding student assessment* (pp. 1-21). Alexandria, VA: Association for Supervision and Curriculum Development.
- Krathwohl, D.R., Bloom, B.S., & Masia, B.B. (1964). *Taxonomy of educational objectives handbook II: The affective domain*. London: Longman.
- Mishler, E.G. (1990). Validation in inquiry-guided research: The role of exemplars in narrative studies. *Harvard Educational Review*, 60(4), 415-442.
- Nagy, P. (1991, June). *An agenda and framework for educational assessment*. Paper presented at the annual meeting of the Canadian Society for the Study of Education, Kingston, Ontario.
- Paulson, F.L., & Paulson, P.R. (1991, April). *The ins and outs of using portfolios to assess performance*. Paper presented at the annual meeting of the National Council on Measurement in Education and the National Association of Test Directors, Chicago.
- Perrone, V. (1991). Toward more powerful assessment. In V. Perrone (Ed.), *Expanding student assessment* (pp. 164-166). Alexandria, VA: Association for Supervision and Curriculum Development.
- Rogers, W.T. (1991). Educational assessment in Canada: Evolution or extinction? *Alberta Journal of Educational Research*, 37, 179-192.
- Rubin, L. (1974). Curriculum, affect and humanism. *Educational Leadership*, 32(1), 10-13.
- Schaps, E., Solomon, D., & Watson, M. (1985). A program that combines character development and academic achievement. *Educational Leadership*, 43(4), 32-35.
- Smith, F. (1992). Learning to read: The never-ending debate. *Phi Delta Kappan*, 73, 432-441.
- Wilson, R.J. (1991, June). *Towards valid assessment of student learning in classrooms*. Paper presented at the annual meeting of the Canadian Society for the Study of Education, Kingston, Ontario.
- Wynne, E.A., & Walberg, H.J. (1985). The complementary goals of character development and academic excellence. *Educational Leadership*, 43(4), 15-18.
- Zessoules, R., & Gardner, H. (1991). Authentic assessment: Beyond the buzzword and into the classroom. In V. Perrone (Ed.), *Expanding student assessment* (pp. 47-71). Alexandria, VA: Association for Supervision and Curriculum Development.

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Some Thoughts on the Alberta Version of Educational Quality Indicators

It is always a treat to be asked to comment on success stories. First, because we know by the title that success has been declared, the reviewer is relieved of any evaluative responsibilities. Second, because it is a story, one can concentrate on the literary and metaphorical aspects and not be too concerned with matters of fact. These are brief accounts of seven of the 10 quality indicator projects whose progress Nelly McEwen and her colleagues have been reporting on for the past three years. As the title suggests, the initiative winds up this fall, and a great deal of the credit for its success goes to Dr. McEwen for her work in herding these creative headstrong, dedicated groups of professionals.

At the outset, I must admit that my colleague Todd Rogers and I played a very minor role in the initiative by reviewing and commenting on each of the projects at their midpoint. Fortunately or unfortunately, depending on your point of view, few traces of our advice are to be found in the present documents, but my feeling of conflict of interest acting as a commentator in this session is understandable. Rather than looking at the reports in detail, I would like to look upon these projects as "data" and talk about some of the topics that they raised in my mind.

Without embarrassing the participants in this symposium, I would like to tell you that they represent the best of front-line educational leadership in Alberta. They combine intellectual skill and common sense with practical experience in their attempts to come to grips with some fundamental issues in evaluation. Their work is worthy of our attention for what it tells us about our own tasks both what we have accomplished and what we have yet to do. Let us consider in a spirit of "joint hindsight" some of the lessons to be learned from this group of projects.

1. There is a great dependence on process-product research. Not long ago, I had a conversation with Graham Nuthall of Canterbury University in New Zealand, who had been involved with some of the early work on the logic of teaching with Smith, Meux, and Coombs. He had just returned from AERA where he and his colleague Adrian Alton-Lee had been presenting some of their research on classroom dynamics. He indicated that there was a strong sense of dismissal with process-product research. The center stage has been taken over by those who study teacher thoughts. Reflective practice is what is important. To put it crudely, the new focus is on what teachers think, not what students learn.

I am not sure how strongly I want to make this contrast, but it is interesting that many of these projects draw their structure from the process-product research, the effective schools literature, outcome based education, and so forth. Of course this reflects the philosophical bent of the current Alberta government, and after all, the project is about indicators, but my reading of these reports is that this kind of literature is appealing to boards and experienced teachers and if we in academe have any inclination to write off the old-fashioned process-product research describing it as Terry Carson does as part of the “technist thrust of neo conservative education reform,” we may be finding ourselves out of step.

2. Having made the first point, however, I noted that in spite of the imported rhetoric and techniques there is a strong made-in-Canada common sense to these projects. The whole notion of quality indicators and the accompanying themes of high success programs, effective schools, and goal-based education derive from a general philosophy of education that promotes notions of competitiveness and success through liberal applications of redressed techniques from industrial psychology. But notice how many of the projects have softened the demand and focused on important aspects from the affective domain like spirituality, collaborative teacher evaluation, making friends, and even being responsible. And notice how in many of the projects the participants have struggled with their need to take a central role in interpreting, acting, and reflecting on the school’s participation in the wider political and social context. The Brooks project with its concentration on the development of social responsibility in a 1990s rural Alberta context; and the Lethbridge Catholic project that grapples with the fundamental issues of parochial instruction under the umbrella of state support.
3. I was struck by how often the projects made use of the Alberta Education’s achievement tests as indicators. This should not have surprised me because this is one of the purposes of the achievement testing program. But there seems (to me at least) a great deal of flak about the utility of these teacher-designed monitors. Their use here tells me that they have some credibility. Ten years ago we would have used the CTBS.

It is important to note how the projects used the results of the provincial achievement tests as indicators. They provide fairly global descriptions of the state of achievement that are useful for quick year-to-year comparisons. They raise warnings but they do not drive specific instructional activity. When that needs to be done a different level of validity is demanded. For example, indicators developed in the Calgary project are superb examples of assessment in the service of instruction. Those strategies not only have great validity, but as strategies they are transportable. In Fort McMurray assessment methods for mathematics had to be designed to be closely aligned both with desired outcomes and with instructional method. In this case, the instruments would not have great generalizability, but they would have strong program validity.

In short, the projects as “data” provide good examples of when provincial assessment information should be used.

4. I am impressed with how the results are being used. I am assuming that the tone of the annual report to the people of Grande Prairie accurately reflects the operations. Note how it says that 18% of our students failed Math 30 in June, and then the superintendent Derek Taylor gives a reasoned analysis of the problem and then says what is going to be done about it. I found the tone to be responsible, the content to be helpful, and if I were a parent I would feel a sense of confidence that someone was on top of this.

Next door in Spirit River, the data collected under the collaborative teacher evaluation model are already being used to select professional development activities. Although some might argue that the list of indicators of quality instruction is incomplete, or ought to be conditional upon grade, subject, student background, and so forth. I am impressed with how 82 teachers were willing to give the whole thing a try. It suggests to me that people are taking some ownership, and with ownership will come suggestions for change. In short the indicator results will not only influence classroom activities, they will also promote revised conceptualization of the nature of teaching.

5. Several of the projects examined aspects of social skills. I am pleased to see this because I think it might sharpen some of the discussion on what role the school has in these matters, and what happens when values come into conflict, for example, makes friends he can really trust versus follows classroom procedures, or shows loyalty, friendship, and trust versus shows appropriate respect for authority.
6. Finally, after we have heard about all of these projects, that is, once we have understood the data, and assuming that Nelly is accurate in her statement that these quality indicators are a success story, where do we stand on the value of the indicator movement itself? What is lost or missing when we focus on indicators, especially quality indicators? Are we buying into an implicit philosophy of education that is a “technist thrust of neo conservative reform”? I think not. Although the Minister and his deputies might have been happier with something different, something that would support their “competitive world vision,” the people in the project turned it into something sensible and practical, and even celebratory. I applaud them for it.

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Bold Projects, Prudent Measures

These seven presentations represent a remarkable achievement, a collaborative effort between a provincial government and local school authorities over several years. This alone would qualify the session for the title "A success story," but there is much more.

Of course, the participants would be the first to tell us that they have just begun the task of constructing meaningful, useful educational indicators, and there is plenty of work yet to be done. With sustained leadership from Alberta Education, however, we can begin to see some possibilities and some limitations in the real world game of educational indicators.

The following points will be elaborated in this response:

1. All important outcomes of education are complex and multidimensional.
2. We do not understand these outcomes very well, and we hardly understand the causes at all.
3. Given the first two points, we find that ordered categories are the best we can do by way of indicators.
4. Educational officials, and even more so political and business leaders, continue to demand a few simple quantitative indicators of these same outcomes.
5. Educators (teachers, officials, researchers) must continue to try to find indicators (a) acceptable to policy makers, and (b) helpful, or at least not harmful, to teachers and students.
6. To do (a), we have learned that some indicators have to be designed and analyzed externally (outside the school, district or even province), often conflicting with (b).
7. Collaboratively developed categories can suffice for (a) and (b), but we must keep insisting that the essential meaning of the outcomes be preserved.

Complexity of Outcomes

It is important to recognize that educational outcomes are complex and multidimensional, because it keeps us from looking for indicators in the form of one or two simple numbers.

The number of dropouts from a school or a school system would appear to be simple to calculate: subtract the number present at the end of the year (or several years) from the number at the beginning. But defining beginning and end proves crucial to the figure, and there is no agreement what to do with students who enter during the year. Some enter and leave, and some leave one

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year and come back the next. More and more part-time students are found in secondary schools. No indicator is simple.

One way to avoid oversimplification shows up several times in the presentations in the concept of Outcome-based Education. The guiding principle of OBE is to design indicators down from outcomes of significance, that is, identify the significant outcome first and then design the indicator(s). Some districts have carried out opinion polls in order to identify outcomes of importance to their wider community, and this has led to development of indicators of character development, world awareness, along with the usual indicators of achievement in school subjects.

The Lethbridge Catholic Schools have been the boldest of all, constructing indicators of behaviors relating to self-worth, interpersonal relationships, world awareness, learning, and spiritual life. Except for the last, it would seem that any district could develop such indicators for itself.

The Meaning and Causes of Outcomes

Strange as it may seem, we still do not understand (or at least we do not agree on) how best to measure educational achievement. We settle for rough approximations to math and science achievement, for example, and even rougher ones for achievement in language arts. Measurement becomes more difficult in social studies and even more so in the arts. Teachers' judgments, based on wide ranging observations, homework, tests, and examinations are still the best indicators we have, and no one argues that these are perfect. It is still best to observe students performing at the outcomes we desire, whether in the "academic" subjects or at sports and the arts, but large-scale performance indicators are proving even more difficult to attain. The main problems are consistency and transfer.

It is easy to identify the talented and those who have great difficulty in learning. In the middle range, however, and within the extreme high and low groups, we find inconsistent results: students who can't do something one day and can the next, or can if the task is changed ever so slightly, or can if given a very small hint. Student motivation is a crucial and largely unmeasured factor. Inconsistency interferes most when we are trying to measure growth, change over time, perhaps because important change in achievement is a slow process, a cumulative result of small changes. This may be why the search for indicators moves quickly beyond individual measurement to the estimation of group (average) attainment. There we find more stable (consistent) results, but we run into the problem of transfer.

Group averages can also indicate extremes, groups scoring much higher or much lower than the majority of those surveyed. Performance (in terms of scores) is stable at the high and low ends of any reasonable scale, but what do we know now that we know the extremes? What are the high scoring groups doing right? What can we do to help the low scoring groups? Are there not groups lurking in the middle who could be doing much better than they are? However we derive our indicators, we know that there are multiple forces from outside the schools helping to shape them, and we know that diversity within schools makes interpretation difficult. Recent careful analyses of international comparative surveys have shown that many of the differences observed in those indicators can be described as intentional: curriculum and

teaching have been organized to produce just the outcomes found in the surveys. On average, students are learning what they have an opportunity to learn, the opportunities are structured quite carefully by educational officials and teachers, and opportunities differ substantially from place to place and country to country. If we are unhappy with the outcomes, the indicators tell us very little about possible changes, because we are already doing what we set out to do. The indicators do not point the way to other outcomes, that is, they do not transfer to new situations.

The closer the indicators are tied to existing curriculums, the better to see how we are doing and to be fair to the students, the more problems we have with transfer. If outcomes indicate that teaching and learning are going well, so much the better, but that is rarely the case (especially in North America); educators in Fort McMurray Catholic schools could take encouragement that more students are earning high scores on provincial achievement tests since the introduction of their Outcome-based Education program, hoping that the small changes will last. When the averages are lower than desired, officials are left with questions and no answers. A partial solution seems to lie in detailed analyses of outcomes at the classroom and school level for quite small clusters of tasks (items). Such analyses have to be anticipated, the surveys have to be very carefully designed to accommodate them, and higher costs and longer testing time may be required. The result has often been gross indicators that serve political purposes but not educational ones.

The Alberta EQI initiative is interesting in that indicators are being sought outside the popular academic achievements in mathematics, science, and language. The Fort McMurray Public School District decided to concentrate on the identification and measurement of desirable student social outcomes, with some surprises. They found and tried a number of existing published measures before concluding that they had to construct their own. This is a common finding.

Implications for the Types of Indicators to Seek

In my opinion, all of the above leads to a solid conclusion, namely, that the most accurate indicators we can hope for will be in the form of ordered categories. Examples abound in the EQI projects, such as the mathematics outcome categories in Calgary: Preliminary, Partial, Complete, Elegant. The Fort McMurray Public School District team found that categories suited their purposes rather than scale scores. Educational outcomes cannot be measured accurately enough to justify one or two decimal places of score accuracy, and probably not even to one percentage point (75% vs. 74%, for example). Ordered categories suffice for curriculum and program decisions, and they are an honest reflection of the state of our measurement skills.

Conflicts with the Perceptions of Officials and Political Leaders

Most people have been conditioned by test scores and percentage marks to expect a single number that sums up all the complex outcomes of schooling, so a selling job is required to explain why ordered categories are more appropriate. Such arguments have to be constructed locally, with a particular target audience in mind, and it is certainly not my place to attempt them. The best approach overall is to concentrate on the policy implications of the indicators,

without getting into technical details. Show how the categories are useful, in other words, and set aside disputes over the form. Again, the reports on the various parts of the EQI initiative contain many examples. Development of the indicators through an open, public process, such as in the Brooks School District, provides the best defense available for indicators, both for the content (policy targets) and for the form.

Reasoned Responses to Public Perceptions

In spite of the best efforts by educators to develop meaningful indicators, pressure continues to grow for simple numbers, and educators continue to seek responses that are (a) acceptable to decision makers, and (b) helpful, or at least not harmful, to teachers and students. To do (a), some indicators must be developed outside the schools, often conflicting with (b), as with provincial examinations. The EQI initiative shows how a compromise can be found, with much of the initiative coming locally, with assistance from the province and wide sharing of the results. It remains to be seen whether there will continue to be funds from the public purse to support such diverse efforts. Perhaps if some of the locally developed indicators can be widely shared, the investment can be seen to be a good and efficient one.

The Importance of Collaborative Action

The final comment is a return to emphasize the importance of collaboration among teachers, among schools, and between the schools and the community. Only through an open process of dialogue can indicators evolve that will be both meaningful and useful. Indices that tell us nothing of value are costly, even if they are much less expensive than category judgments built up from the responses of many people. Pointless testing is costly of our scarcest asset time. Collaboration is never pointless, and it does not lead to meaningless indicators. Collaboration is the key to political, social, *and* educational success.

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